COUNTY
LIBRARY

GLOUCESTERSHIRE COUNTY RESERVE
591.954
a
Vol III

Baker.
The fauna of British India.
Vol. III

GLOUCESTERSHIRE COUNTY LIBRARY

Headquarters: BERKELEY STREET, GLOUCESTER
Tel. Gloucester 21444

The last date entered below is the date by which this book must be returned.

Readers are requested to take care of the books while in their possession and to point out any defect that they may observe in them to the Local Librarian.

| Date of Return | Date of Return | Date of Return | Date of Return |
|---|---|---|---|
| 8 APR 1977 | | | |

GLOUCESTERSHIRE EDUCATION COMMITTEE

THIS LABEL MUST NOT BE TORN OUT

C.L.16 PD/L–3

1 272590 002 58

Mm = ·04

Carr Sheldon
1925

# THE FAUNA OF BRITISH INDIA,

INCLUDING

## CEYLON AND BURMA.

*Published under the authority of the Secretary of State for India in Council.*

EDITED BY SIR ARTHUR E. SHIPLEY, G.B.E., Sc.D. Cantab., HON. D.Sc. Princeton, HON. LL.D. Michigan, F.R.S.

---

## BIRDS.—VOL. III.

(Second Edition.)

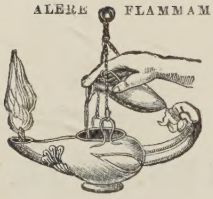
BY

E. C. STUART BAKER, O.B.E., F.Z.S., Etc.

---

LONDON:
TAYLOR AND FRANCIS, RED LION COURT, FLEET STREET.
*March*, 1926.

ALERE FLAMMAM.



PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

GLOUCESTERSHIRE COUNTY LIBRARY
RESERVE
591.954
a
Vol. III

# INTRODUCTION.

THE present volume, No. 3 of the Avifauna, completes the work in so far as it deals with the *Passeres*. In the three volumes are contained 303 genera, 786 species, or a total of 1336 species and subspecies. In the first edition of the Avifauna the *Passeres* were contained in two volumes, the total number of genera being 313 and the total number of species 936. Oates, however, did not include the family *Eurylaimidæ* in the *Passeres* and this would add 6 genera and 9 species recognized at that time and would have brought the totals of genera and species up to 319 and 945 respectively.

Although the actual number of species dealt with in the present three volumes is only 786 it must be remembered that a very large number of forms accepted by Blanford and Oates as full species were, in reality, nothing more than geographical races. In 1895 the division of species into subspecies had not been accepted and, in consequence, many geographical races were exalted to the position of species, a status to which they had no right whilst, on the other hand, many others equally good were totally ignored.

In addition to the birds enumerated in the first edition, a certain number of entirely new species have been discovered, more especially in Burma. A certain number, also, of birds from adjoining countries have now been

recorded as having been obtained within the Indian Empire. It is, however, due principally to the proper defining of the geographical races that there is so great an increase in the number of birds dealt with and this is what we should expect to find in so vast a country as that dealt with in the limits of this work.

The present volume contains 509 pages, 7 coloured illustrations and 90 woodcuts ; in addition to these is given a map showing the region dealt with in the Fauna of India Series and upon this map will be found the great majority of the names of the places referred to.

The woodcuts are reproduced from the first edition of the Avifauna, whilst the coloured plates are the work of the author.

No one who has not read and re-read this volume can appreciate the immense labour and wide learning of the author. The large number of facts mentioned under each species or subspecies is enormous, and that the highest degree of accuracy possible has been obtained is due to the learning, industry and painstaking care of the author.

A. E. SHIPLEY.

February 1926.

# PREFACE.

In completing the third volume of the 'Avifauna of British India' the Author feels that the most difficult part of his work has been accomplished and it seems an opportune moment to express his thanks to all those who have helped him. In the first place his gratitude is due to the authorities of the Natural History Museum who have done everything in their power to facilitate the execution of his work and to place at his disposal the unrivalled collections of Indian birds and the magnificent library. To the Staff of the Ornithological Section he is deeply indebted for the constant assistance given and the courtesy shown him and he would like especially to mention Dr. P. Lowe, Mr. N. Kinnear and Mr. J. Wells. To Dr. Hartert and others who have kindly read portions of his manuscript his thanks are also due whilst he recognizes that it is almost impossible to realize the immense amount of work that has fallen upon the Editor, Sir A. E. Shipley, especially in the way of proof-reading, carried out with a thoroughness and success which would have been impossible had he not had at his disposal the resources of a great University as well as those of the finest Libraries and Collections within the Empire.

The Author would like to draw attention to the fact that in any work on Natural History it is impossible to design any sequence for orders, families and genera which shall be entirely satisfactory. Unfortunately for the Ornithologist, no consecutive arrangement of Families can give a proper idea of how they interlink, one into another; the only satisfactory manner of dealing with the Aves would be by a genealogical tree, branching in all directions from the one great parent branch.

E. C. STUART BAKER.

February, 1926.

Digitized by the Internet Archive
in 2025

https://archive.org/details/faunaofbritishin0000ecst_h3f5

# SYSTEMATIC INDEX.


| | Page |
|---|---|
| XVIII. Family IRENIDÆ | 1 |
| 212. Genus Irena *Horsf.* | 1 |
| 557. puella (*Lath.*) | 1 |
| 708. puella puella (*Lath.*) | 1 |
| 709. puella cyanea (*Begbie*) | 3 |
| XIX. Family ORIOLIDÆ | 4 |
| 213. Genus Oriolus *Linn.* | 4 |
| 558. oriolus (*Linn.*) | 5 |
| 710. oriolus oriolus (*Linn.*) | 5 |
| 711. oriolus kundoo (*Sykes*) | 6 |
| 559. chinensis *Linn.* | 7 |
| 712. chinensis indicus (*Jerdon*) | 7 |
| 713. chinensis tenuirostris (*Blyth*) | 9 |
| 714. chinensis macrourus (*Blyth*) | 10 |
| 715. chinensis andamanensis (*Tytler*) | 10 |
| 560. xanthornus (*Linn.*) | 11 |
| 716. xanthornus xanthornus (*Linn.*) | 11 |
| 717. xanthornus ceylonensis (*Bonaparte*) | 12 |
| 561. xanthonotus *Horsf.* | 13 |
| 718. xanthonotus xanthonotus (*Horsf.*) | 13 |
| 562. trailli (*Vigors*) | 14 |
| XX. Family EULABETIDÆ | 16 |
| 214. Genus Eulabes *Cuvier* | 16 |
| 563. religiosa *Cuvier* | 17 |
| 564. javana *Cuvier* | 18 |
| 719. javana javana (*Cuvier*) | 18 |
| 720. javana intermedia (*A. Hay*) | 19 |
| 721. javana andamanensis (*Tytler*) | 20 |
| 565. ptilogenys (*Blyth*) | 21 |
| 215. Genus Lamprocorax *Bonaparte* | 21 |
| 566. panayensis (*Gray*) | 22 |
| 722. panayensis strigatus (*Horsf.*) | 22 |
| 723. panayensis tytleri (*Hume*) | 23 |
| 724. panayensis affinis (*A. Hay*) | 24 |
| 216. Genus Saraglossa *Hodgson* | 24 |
| 567. spiloptera (*Vigors*) | 24 |
| 725. spiloptera spiloptera (*Vigors*) | 25 |
| 726. spiloptera assamensis (*Stuart Baker*) | 26 |

| | Page |
|---|---|
| XXI. Family STURNIDÆ | 27 |
| 217. Genus Pastor *Temm.* | 28 |
| 568. roseus (*Linn.*) | 29 |
| 218. Genus Sturnus *Linn.* | 30 |
| 569. vulgaris *Linn.* | 30 |
| 727. vulgaris humii (*Brooks*) | 31 |
| 728. vulgaris porphyronotus (*Sharpe*) | 32 |
| 729. vulgaris minor (*Hume*) | 33 |
| 730. vulgaris poltaratzskii (*Finsch*) | 34 |
| 731. vulgaris nobilior (*Hume*) | 34 |
| 732. vulgaris dresseri (*Buturlin*) | 35 |
| 733. vulgaris dzungaricus (*Buturlin*) | 35 |
| 219. Genus Spodiopsar *Sharpe* | 36 |
| 570. cineraceus (*Temm.*) | 36 |
| 220. Genus Sturnia *Linn.* | 37 |
| 571. turdiformis (*Wagler*) | 37 |
| 572. malabarica (*Gmelin*) | 38 |
| 734. malabarica malabarica (*Gmelin*) | 39 |
| 735. malabarica blythii (*Jerdon*) | 40 |
| 736. malabarica andamanensis (*Tytler*) | 41 |
| 737. malabarica erythropygia (*Blyth*) | 41 |
| 738. malabarica katchalensis (*Richmond*) | 42 |
| 739. malabarica nemoricola (*Jerdon*) | 42 |
| 221. Genus Agropsar *Oates* | 43 |
| 573. sturninus (*Pall.*) | 43 |
| 222. Genus Ampeliceps *Blyth* | 44 |
| 574. coronatus *Blyth* | 44 |
| 223. Genus Sturnornis *Legge* | 46 |
| 575. senex (*Temm.*) | 46 |
| 224. Genus Temenuchus *Cab.* | 47 |
| 576. pagodarum (*Gmelin*) | 47 |
| 225. Genus Gracupica *Lesson* | 49 |
| 577. nigricollis (*Payk.*) | 49 |
| 578. burmanica (*Jerdon*) | 50 |
| 579. leucocephala (*Gigl. & Salv.*) | 51 |
| 740. leucocephala leucocephala (*Gigl. & Salv.*) | 51 |
| 741. leucocephala annamensis (*Wells*) | 52 |
| 226. Genus Acridotheres *Vieill.* | 52 |
| 580. tristis (*Linn.*) | 53 |
| 742. tristis tristis (*Linn.*) | 53 |
| 743. tristis melanosternus (*Legge*) | 55 |
| 581. ginginianus (*Lath.*) | 55 |
| 227. Genus Æthiopsar *Sharpe* | 56 |
| 582. fuscus (*Wagl.*) | 56 |
| 744. fuscus fuscus (*Wagl.*) | 57 |
| 745. fuscus torquatus (*Davison*) | 58 |
| 583. grandis (*Moore*) | 59 |
| 746. grandis grandis (*Moore*) | 59 |
| 747. grandis infuscatus (*Stuart Baker*) | 59 |
| 584. albocinctus (*Godw.-Aust. & Wald.*) | 60 |

XXI. Family STURNIDÆ (*cont.*). Page
228. Genus Sturnopastor *Hodgs.* ..... 61
585. capensis (*Linn.*) ..... 62
748. capensis capensis (*Linn.*) ..... 62
749. capensis dehræ *Stuart Baker* ..... 63
750. capensis superciliaris (*Blyth*) ..... 64
751. capensis floweri (*Sharpe*) ..... 64

XXII. Family PLOCEIDÆ ..... 65
Subfamily PLOCEINÆ ..... 66
229. Genus Ploceus *Cuvier* ..... 66
586. philippinus (*Linn.*) ..... 67
587. megarhynchus *Hume* ..... 69
588. passerinus *Reichenow* ..... 70
752. passerinus passerinus (*Reichenow*) ..... 70
753. passerinus infortunatus *Hartert* ..... 71
589. benghalensis (*Linn.*) ..... 72
590. manyar (*Horsf.*) ..... 73
754. manyar flaviceps (*Less.*) ..... 73
755. manyar striatus (*Blyth*) ..... 74
756. manyar peguensis *Stuart Baker* ..... 75
230. Genus Ploceëlla *Oates* ..... 75
591. chrysæa (*Hume*) ..... 76
Subfamily ESTRILDINÆ ..... 77
231. Genus Munia *Hodgs.* ..... 77
592. malacca (*Linn.*) ..... 78
757. malacca malacca (*Linn.*) ..... 78
758. malacca orientalis *Stuart Baker* ..... 79
593. atricapilla (*Vieill.*) ..... 80
759. atricapilla atricapilla (*Vieill.*) ..... 80
760 atricapilla rubronigra (*Hodgs.*) ..... 81
232. Genus Urolonchа *Cab.* ..... 81
594. striata (*Linn.*) ..... 82
761. striata striata (*Linn.*) ..... 83
762. striata fumigata (*Walden*) ..... 83
763. striata semistriata (*Hume*) ..... 84
764. striata acuticauda (*Hodgs.*) ..... 84
765. striata subsquamicollis *Stuart Baker* ..... 86
595. leucogastra (*Blyth*) ..... 87
766. leucogastra leucogastra (*Blyth*) ..... 87
596. rufiventris *Stuart Baker* ..... 88
597. kelaarti (*Blyth*) ..... 89
598. malabarica (*Linn.*) ..... 89
599. punctulata (*Linn.*) ..... 90
767. punctulata punctulata (*Linn.*) ..... 91
768. punctulata subundulata (*Godw.-Aust.*) ..... 92
769. punctulata topela (*Swinh.*) ..... 92
233. Genus Erythrura *Swainson* ..... 93
600. prasina (*Sparrm.*) ..... 93
770. prasina prasina (*Sparrm.*) ..... 93

| | Page |
|---|---|
| XXII. Family PLOCEIDÆ (*cont.*). | |
| 234. Genus Stictospiza *Sharpe* | 94 |
| 601. formosa (*Lath.*) | 94 |
| 235. Genus Amandava *Blyth* | 95 |
| 602. amandava (*Linn.*) | 96 |
| 603. flavidiventris (*Wallace*) | 97 |
| XXIII. Family FRINGILLIDÆ | 98 |
| Subfamily COCCOTHRAUSTINÆ | 99 |
| 236. Genus Coccothraustes *Brisson* | 99 |
| 604. coccothraustes (*Linn.*) | 100 |
| 771. coccothraustes humii (*Sharpe*) | 100 |
| 237. Genus Perissospiza *Oberholser* | 101 |
| 605. icterioides (*Vigors*) | 102 |
| 772. icterioides icterioides (*Vigors*) | 102 |
| 773. icterioides affinis (*Blyth*) | 103 |
| 606. carnipes (*Hodgs.*) | 104 |
| 238. Genus Mycerobas *Cab.* | 105 |
| 607. melanoxanthus (*Hodgs.*) | 105 |
| Subfamily FRINGILLINÆ | 107 |
| 239. Genus Pyrrhula *Brisson* | 108 |
| 608. aurantiaca *Gould* | 109 |
| 609. erythrocephala *Vigors* | 110 |
| 616. erythaca *Blyth* | 111 |
| 774. erythaca erythaca (*Blyth*) | 111 |
| 775. erythaca altera (*Rippon*) | 112 |
| 611. nipalensis *Hodgs.* | 112 |
| 776. nipalensis nipalensis (*Hodgs.*) | 112 |
| 777. nipalensis victoriæ (*Rippon*) | 113 |
| 240. Genus Pyrrhoplectes *Hodgs.* | 114 |
| 612. epauletta (*Hodgs.*) | 114 |
| 241. Genus Loxia *Linn.* | 115 |
| 613. curvirostra *Linn.* | 115 |
| 778. curvirostra himalayana (*Blyth*) | 115 |
| 242. Genus Hæmatospiza *Blyth* | 116 |
| 614. sipahi (*Hodgs.*) | 117 |
| 243. Genus Propyrrhula *Hodgs.* | 118 |
| 615. subhimachala (*Hodgs.*) | 119 |
| 779. subhimachala subhimachala (*Hodgs.*) | 119 |
| 244. Genus Pyrrhospiza *Hodgs.* | 120 |
| 616. punicea *Hodgs.* | 120 |
| 780. punicea punicea (*Hodgs.*) | 120 |
| 781. punicea humii (*Sharpe*) | 121 |
| 245. Genus Propasser *Hodgs.* | 122 |
| 617. thura (*Bon. & Schl.*) | 123 |
| 782. thura thura (*Bon. & Schl.*) | 123 |
| 783. thura blythi (*Biddulph*) | 124 |
| 784. thura dubius (*Przewalski*) | 125 |
| 785. thura femininus (*Rippon*) | 126 |
| 618. pulcherrimus *Blyth* | 126 |

XXIII. Family FRINGILLIDÆ (*cont.*).
245. Genus Propasser (*cont.*). Page
786 pulcherrimus pulcherrimus (*Blyth*) ..... 126
787. pulcherrimus davidianus (*Milne-Edw.*) .. 127
619. rhodochlamys (*Brandt*) ..... 128
788. rhodochlamys grandis (*Blyth*) ..... 128
620. rodochrous (*Vigors*) ..... 129
621. rodopeplus (*Vigors*) ..... 130
622. edwardsii (*Verr.*) ..... 131
789. edwardsii saturatus (*Hartert*) ..... 131
623. ripponi (*Sharpe*) ..... 132
624. vinaceus (*Verr.*) ..... 133
790. vinaceus vinaceus (*Verr.*) ..... 133
246. Genus Carpodacus *Kaup* ..... 134
625. erythrinus (*Pall.*) ..... 134
791. erythrinus erythrinus (*Pall.*) ..... 135
792. erythrinus kubanensis *Laub.* ..... 136
793. erythrinus roseatus (*Hodgs.*) ..... 137
626. rubicilla (*Güldenstädt*) ..... 138
794. rubicilla rubicilloides (*Pzew.*) ..... 138
627. severtzovi *Sharpe* ..... 139
247. Genus Erythrospiza *Bonap.* ..... 140
628. githaginea (*Licht.*) ..... 141
795. githaginea crassirostris (*Blyth*) ..... 141
629. mongolica (*Swinhoe*) ..... 142
248. Genus Rhodospiza *Sharpe* ..... 143
630. obsoleta (*Licht.*) ..... 143
249. Genus Rhodopechys *Cabanis* ..... 144
631. sanguinea (*Gould*) ..... 144
796. sanguinea sanguinea (*Gould*) ..... 144
250. Genus Procarduelis *Hodgs.* ..... 145
632. nipalensis (*Hodgs.*) ..... 146
797. nipalensis nipalensis (*Hodgs.*) ..... 146
798. nipalensis intensicolor *Stuart Baker* .... 147
633. rubescens *Blanf.* ..... 147
799. rubescens rubescens (*Blanf.*) ..... 148
800. rubescens saturatior *Roths.* ..... 148
251. Genus Carduelis *Brisson* ..... 149
634. carduelis (*Linn.*) ..... 149
801. carduelis major (*Taczan.*) ..... 149
635. caniceps *Vigors* ..... 150
802. caniceps caniceps (*Vigors*) ..... 150
803. caniceps subulata (*Gloger*) ..... 151
252. Genus Callacanthis *Reichenb.* ..... 152
636. burtoni (*Gould*) ..... 152
253. Genus Acanthis *Bechst.* ..... 154
637. cannabina (*Linn.*) ..... 154
804. cannabina fringillirostris (*Bp. & Schleg.*). 154
638. flavirostris (*Linn.*) ..... 155
805. flavirostris brevirostris (*Moore*) ..... 156

Goldfinch

Linnets
Twite

XXIII. Family FRINGILLIDÆ (*cont.*).

| | Page |
|---|---|
| 253. Genus Acanthis (*cont.*). | |
| 806. flavirostris montanella (*Hume*) | 157 |
| 807. flavirostris rufostrigata (*Walton*) | 157 |
| 254. Genus Metaponia *Bonaparte* | 158 |
| 639. pusilla (*Pall.*) | 158 |
| 255. Genus Hypacanthis *Cabanis* | 160 |
| 640. spinoides (*Vigors*) | 160 |
| 808. spinoides spinoides (*Vigors*) | 160 |
| 809. spinoides ambiguus (*Oust.*) | 161 |
| 256. Genus Chrysomitris *Boie* | 162 |
| 641. thibetana *Hume* | 162 |
| 257. Genus Fringilla *Linn.* | 163 |
| 642. cœlebs *Linn.* | 163 |
| 810. cœlebs cœlebs (*Linn.*) | 163 |
| 643. montifringilla *Linn.* | 164 |
| 258. Genus Gymnoris *Hodgs.* | 166 |
| 644. xanthocollis (*Burton*) | 166 |
| 811. xanthocollis xanthocollis (*Burton*) | 166 |
| 812. xanthocollis transfuga (*Hartert*) | 168 |
| 259. Genus Passer *Brisson* | 169 |
| 645. domesticus (*Linn.*) | 169 |
| 813. domesticus indicus (*Jard. & Selby*) | 170 |
| 814. domesticus confucius (*Bonaparte*) | 172 |
| 815. domesticus parkini *Whistler* | 173 |
| 646. pyrrhonotus *Blyth* | 174 |
| 647. hispaniolensis (*Temm.*) | 175 |
| 816. hispaniolensis trancaspicus *Tschusi* | 175 |
| 648. montanus (*Linn.*) | 176 |
| 817. montanus montanus (*Linn.*) | 176 |
| 818. montanus malaccensis (*Dubois*) | 177 |
| 819. montanus dilutus *Richmond* | 178 |
| 820. montanus obscuratus *Jacobi* | 179 |
| 649. rutilans (*Temm.*) | 179 |
| 821. rutilans cinnamomeus (*Gould*) | 180 |
| 822. rutilans debilis *Hartert* | 181 |
| 823. rutilans intensor *Rothschild* | 182 |
| 650. flaveolus *Blyth* | 182 |
| 260. Genus Petronia *Kaup* | 183 |
| 651. petronia (*Linn.*) | 184 |
| 824. petronia intermedia *Hartert* | 184 |
| 261. Genus Montifringilla *Brehm* | 185 |
| 652. nivalis (*Linn.*) | 186 |
| 825. nivalis alpicola (*Pall.*) | 186 |
| 826. nivalis adamsi (*Adams*) | 187 |
| 653. taczanowskii (*Prjevalsky*) | 188 |
| 654. ruficollis *Blanf.* | 189 |
| 655. blanfordi *Hume* | 190 |
| 262. Genus Fringillauda *Hodgs.* | 190 |
| 656. nemoricola *Hodgs.* | 191 |

XXIII. Family FRINGILLIDÆ (*cont.*).
262. Genus Fringillauda (*cont.*). Page
827. nemoricola nemoricola (*Hodgs.*) ..... 191
828. nemoricola altaica (*Eversm.*) ..... 192
657. brandti (*Bonaparte*) ..... 193
829. brandti brandti (*Bonaparte*) ..... 193
830. brandti hæmatopygia (*Gould*) ..... 194
Subfamily EMBERIZINÆ ..... 195
263. Genus Emberiza *Linn.* ..... 195
658. schœniclus (*Linn.*) ..... 196
831. schœniclus pallidior *Hartert* ..... 197
659. fucata *Pall.* ..... 198
832. fucata fucata (*Pall.*) ..... 198
833. fucata arcuata (*Sharpe*) ..... 199
660. pusilla *Pall.* ..... 200
661. leucocephala *Gmelin* ..... 202
662. stewarti *Blyth* ..... 203
663. cia *Linn.* ..... 204
834. cia stracheyi (*Moore*) ..... 205
835. cia par *Hartert* ..... 206
836. cia godlewskii (*Tacz.*) ..... 207
837. cia yunnanensis (*Sharpe*) ..... 207
664. huttoni *Blyth* ..... 208
665. hortulana *Linn.* ..... 209
666. aureola *Pallas* ..... 210
667. spodocephala *Pallas* ..... 212
838. spodocephala melanops (*Blyth*) ..... 212
668. melanocephala *Scop.* ..... 213
669. icterica *Eversm.* ..... 215
670. rutila *Pall.* ..... 216
671. striolata (*Licht.*) ..... 217
839. striolata striolata (*Licht.*) ..... 217
672. calandra *Linn.* ..... 218
840. calandra calandra (*Linn.*) ..... 218
673. citrinella *Linn.* ..... 219
841. citrinella erythrogenys (*Brehm*) ..... 219
264. Genus Melophus *Swainson* ..... 220
674. melanicterus (*Gmelin*) ..... 221

XXIV. Family BOMBYCILLIDÆ ..... 223
265. Genus Bombycilla *Vieill.* ..... 223
675. garrula (*Linn.*) ..... 223

XXIV. Family HIRUNDINIDÆ ..... 225
266. Genus Delichon *Horsf. & Moore* ..... 226
676. urbica (*Linn.*) ..... 226
842. urbica urbica (*Linn.*) ..... 226
843. urbica cashmeriensis (*Gould*) ..... 228
844. urbica whiteleyi (*Swinh.*) ..... 229
677. nepalensis *Hodgs. & Moore* ..... 230

| | Page |
|---|---|
| XXIV. Family HIRUNDINIDÆ (*cont.*). | |
| 267. Genus Riparia *Forster* | 231 |
| 678. riparia (*Linn.*) | 231 |
| 845. riparia diluta (*Sharpe & Wyatt*) | 232 |
| 846. riparia subsoccata (*Jerdon*) | 233 |
| 847. riparia ijimæ (*Lönnb.*) | 234 |
| 679. paludicola (*Vieill.*) | 234 |
| 848. paludicola chinensis (*Gray*) | 235 |
| 268. Genus Ptyonoprogne *Reichenb.* | 236 |
| 680. rupestris *Scop.* | 236 |
| 681. concolor (*Sykes*) | 237 |
| 682. obsoleta (*Cabanis*) | 238 |
| 849. obsoleta obsoleta (*Cabanis*) | 238 |
| 269. Genus Hirundo *Linn.* | 239 |
| 683. rustica *Linn.* | 240 |
| 850. rustica rustica (*Linn.*) | 240 |
| 851. rustica gutturalis (*Scop.*) | 241 |
| 852. rustica tytleri (*Jerdon*) | 242 |
| 684. javanica *Sparrm.* | 243 |
| 853. javanica javanica (*Sparrm.*) | 243 |
| 854. javanica domicola (*Jerdon*) | 244 |
| 685. smithii *Leach* | 245 |
| 855. smithii filifera (*Stephens*) | 245 |
| 686. fluvicola *Jerdon* | 246 |
| 687. daurica *Linn.* | 248 |
| 856. daurica daurica (*Linn.*) | 248 |
| 857. daurica striolata (*Temm. & Schl.*) | 249 |
| 858. daurica nepalensis (*Hodgs.*) | 250 |
| 859. daurica erythropygia (*Sykes*) | 251 |
| 860. daurica rufula (*Temm.*) | 252 |
| 861. daurica hyperythra (*Layard*) | 253 |
| XXVI. Family MOTACILLIDÆ | 254 |
| 270. Genus Motacilla *Linn.* | 254 |
| 688. alba *Linn.* | 255 |
| 862. alba alba (*Linn.*) | 256 |
| 863. alba dukhunensis (*Sykes*) | 257 |
| 864. alba persica (*Blanf.*) | 258 |
| 865. alba personata (*Gould*) | 259 |
| 866. alba baicalensis (*Swinhoe*) | 260 |
| 867. alba ocularis (*Swinhoe*) | 261 |
| 689. lugubris *Temm.* | 261 |
| 868. lugubris alboides (*Hodgs.*) | 262 |
| 869. lugubris maderaspatensis (*Gmelin*) | 263 |
| 870. lugubris leucopsis (*Gould*) | 264 |
| 690. cinerea *Tunstall* | 264 |
| 871. cinerea caspica (*Gmelin*) | 265 |
| 691. flava *Linn.* | 267 |
| 872. flava beema (*Sykes*) | 267 |
| 873. flava thunbergi (*Billberg*) | 269 |

XXVI. Family MOTACILLIDÆ (*cont.*).
270. Genus Motacilla (*cont.*). Page
874. flava taivana (*Swinhoe*) ..... 270
875. flava leucocephala (*C. Deditius*) ..... 270
692. feldegg *Michahelles* ..... 271
876. feldegg feldegg (*Michahelles*) ..... 271
877. feldegg melanogriseus (*Homeyer*) ..... 272
693. citreola *Pall.* ..... 273
878. citreola citreola (*Pall.*) ..... 273
879. citreola calcarata (*Hodgs.*) ..... 274
271. Genus Dendronanthus *Blyth* ..... 275
694. indicus (*Gmelin*) ..... 276
272. Genus Anthus *Bechstein* ..... 277
695. trivialis (*Linn.*) ..... 278
880. trivialis trivialis (*Linn.*) ..... 279
881. trivialis haringtoni *Witherby* ..... 280
696. hodgsoni (*Richmond*) ..... 281
882. hodgsoni hodgsoni (*Richmond*) ..... 281
883. hodgsoni yunnanensis (*Uchida & Kuroda*). 282
884. hodgsoni berezowskii (*Sarudny*)..... 283
697. nilghiriensis *Sharpe* ..... 283
698. sordidus *Rüpp*..... 284
885. sordidus similis (*Jerdon*) ..... 285
886. sordidus jerdoni (*Finsch*) ..... 286
887. sordidus decaptus *Meinertz.* ..... 287
699. richardi *Vieill.*..... 287
888. richardi richardi (*Vieill.*)..... 288
889. richardi godlewskii (*Taczanowski*) ..... 289
890. richardi rufulus (*Vieill.*)..... 290
891. richardi malayensis (*Eyton*) ..... 292
700. campestris (*Linn.*) ..... 292
892. campestris campestris (*Linn.*)..... 292
893. campestris griseus *Nicoll*..... 293
701. cervinus (*Pall.*) ..... 294
702. roseatus *Hodgs.* ..... 295
703. spinoletta (*Linn.*) ..... 296
894. spinoletta coutelli (*Savigny*) ..... 297
895. spinoletta blakistoni (*Swinh.*)..... 298
896. spinoletta japonicus (*Temm. & Schlegel*).. 299
273. Genus Oreocorys *Sharpe* ..... 299
704. sylvanus (*Hodgs.*)..... 299

XXVII. Family ALAUDIDÆ ..... 302
274. Genus Alæmon *Keys. & Blas.*..... 304
705. alaudipes (*Desf.*) ..... 304
897. alaudipes doriæ (*Salvad.*)..... 304
275. Genus Otocoris *Bonaparte* ..... 306
706. penicillata (*Gould*) .. ..... 307
898. penicillata albigula (*Bonaparte*) ..... 307

XXVII. Family ALAUDIDÆ (*cont.*).
275. Genus Otocoris (*cont.*). Page
707. alpestris (*Linn.*) ..... 308
899. alpestris longirostris (*Moore*) ..... 309
900. alpestris elwesi (*Blanf.*) ..... 310
276 Genus Melanocorypha *Boie* ..... 311
708. maxima *Gould* ..... 311
709. bimaculata (*Ménétr.*) ..... 312
901. bimaculata bimaculata (*Ménétr.*) ..... 312
277. Genus Alauda *Linn.* ..... 314
710. arvensis *Linn.* ..... 315
902. arvensis dulcivox (*Brooks*) ..... 315
903. arvensis inopinata (*Bianchi*) ..... 316
904. arvensis japonica (*Temm. & Schlegel*) .... 317
711. gulgula *Franklin* ..... 318
905. gulgula guttata (*Brooks*) ..... 318
906. gulgula gulgula (*Franklin*) ..... 319
907. gulgula australis (*Brooks*) ..... 320
908. gulgula cœlivox (*Swinhoe*) ..... 321
909. gulgula herberti (*Hartert*) ..... 322
910. gulgula inconspicua (*Severtz.*) ..... 322
278. Genus Calandrella *Kaup* ..... 323
712. brachydactyla (*Leisler*) ..... 323
911. brachydactyla brachydactyla (*Leisler*) .. 324
912. brachydactyla longipennis (*Eversm.*) .... 325
913. brachydactyla dukhunensis (*Sykes*) .... 326
713. acutirostris *Hume* ..... 327
914. acutirostris acutirostris (*Hume*) ..... 327
915. acutirostris tibetana (*Brooks*) ..... 328
279. Genus Alaudula *Horsf. & Moore* ..... 329
714. raytal (*Blyth*) ..... 329
916. raytal raytal (*Blyth*) ..... 329
917. raytal adamsi (*Hume*) ..... 331
715. rufescens (*Vieill.*) ..... 332
918. rufescens persica (*Sharpe*) ..... 332
919. rufescens seebohmi (*Sharpe*) ..... 333
280. Genus Mirafra *Horsf.* ..... 333
716. cantillans *Jerdon* ..... 334
920. cantillans cantillans (*Jerdon*) ..... 334
717 javanica *Horsf.* ..... 335
921. javanica williamsoni *Stuart Baker* ..... 336
718. assamica *McClell.* ..... 336
922. assamica assamica (*McClell.*) ..... 337
923. assamica marionæ *Stuart Baker* ..... 338
924. assamica affinis (*Jerdon*) ..... 339
925. assamica microptera (*Hume*) ..... 340
719. erythroptera *Jerdon* ..... 340
926. erythroptera erythroptera (*Jerdon*) ..... 341
927. erythroptera sindiana *Ticehurst* ..... 342

XXVII. Family ALAUDIDÆ (*cont.*). Page
281. Genus Galerida *Boie* ..... 342
720. cristata (*Linn.*) ..... 343
928. cristata chendoola (*Franklin*) ..... 343
929. cristata magna (*Hume*) ..... 345
930. cristata leautungensis (*Swinh.*) ..... 346
721. deva (*Sykes*) ..... 347
722. malabarica (*Scop.*) ..... 348
282. Genus Ammomanes *Cab.* ..... 349
723. phœnicura (*Franklin*) ..... 349
931. phœnicura phœnicura (*Franklin*) ..... 350
932. phœnicura zarudnyi (*Hartert*) ..... 351
724. deserti (*Licht.*) ..... 352
933. deserti phœnicuroides (*Blyth*) ..... 352
283. Genus Pyrrhulauda *Smith* ..... 353
725. grisea (*Scop.*) ..... 353
726. frontalis *Bonaparte* ..... 355
934. frontalis affinis (*Blyth*) ..... 355

XXVIII. Family ZOSTEROPIDÆ ..... 357
284. Genus Zosterops (*Vigors & Horsf.*) ..... 357
727. palpebrosa (*Temm.*) ..... 358
935. palpebrosa palpebrosa (*Temm.*) ..... 358
936. palpebrosa elwesi *Stuart Baker* ..... 360
937. palpebrosa egregia (*Madarasz*) ..... 361
938. palpebrosa cacharensis *Stuart Baker* .... 361
939. palpebrosa nicobariensis (*Blyth*) .. ..... 362
728. simplex *Swinhoe* ..... 363
940. simplex peguensis *Stuart Baker* ..... 363
729. siamensis *Blyth* ..... 364
730. aureiventris *Hume* ..... 364
941. aureiventris aureiventris (*Hume*) ..... 365
942. aureiventris mesoxantha (*Salvadori*) .... 365
731. ceylonensis *Holdsworth* .. ... ..... 366

XXIX. Family CHALCOPARIIDÆ ..... 368
285. Genus Chalcoparia *Cabanis* ..... 368
732. singalensis (*Gmelin*) ..... 368
943. singalensis singalensis (*Gmelin*) ..... 368
944. singalensis lepida (*Lath.*) ..... 370

XXX. Family NECTARINIIDÆ ..... 372
Subfamily NECTARINIINÆ ..... 372
286. Genus Chalcostetha *Cabanis* ..... 373
733. chalcostetha (*Jardine*) ..... 373
287. Genus Æthopyga *Cabanis* ..... 374
734. siparaja (*Raffles*) ..... 375
945. siparaja cara (*Hume*) ..... 376
946. siparaja nicobarica (*Hume*) ..... 377
947. siparaja seheriæ (*Tickell*) ..... 378

XXX. Family Nectariniidæ (*cont.*).
287. Genus Æthopyga (*cont.*). Page
948. siparaja mussooriensis *Stuart Baker* .... 380
949. siparaja viridicauda *Rothschild* ..... 381
950. siparaja vigorsi (*Sykes*) ..... 381
735. ignicauda (*Hodgs.*) ..... 383
951. ignicauda ignicauda (*Hodgs.*) ..... 383
952. ignicauda flavescens *Stuart Baker* ..... 384
953. ignicauda exultans *Stuart Baker* ..... 385
736. gouldiæ (*Vigors*) ..... 385
954. gouldiæ gouldiæ (*Vigors*) ..... 385
955. gouldiæ isolata *Stuart Baker* ..... 386
737. dabryi (*Verreaux*) ..... 387
738. saturata (*Hodgs.*) ..... 388
956. saturata saturata (*Hodgs.*) ..... 388
739. sanguinipecta *Walden* ..... 390
957. sanguinipecta sanguinipecta (*Walden*) .. 390
740. nipalensis (*Hodgs.*) ..... 390
958. nipalensis nipalensis (*Hodgs.*) ..... 391
959. nipalensis horsfieldi (*Blyth*) ..... 392
960. nipalensis victoriæ (*Rippon*) ..... 392
288. Genus Leptocoma *Cabanis* ..... 393
741. lotenia (*Linn.*) ..... 394
742. asiatica (*Lath.*) ..... 396
961. asiatica asiatica (*Lath.*) ..... 396
962. asiatica intermedia (*Hume*) ..... 398
963. asiatica brevirostris (*Blanf.*) ..... 399
743. brasiliana (*Gmelin*) ..... 400
744. ornata (*Lesson*) ..... 401
964. ornata ornata (*Lesson*) ..... 401
965. ornata blanfordi (*Stuart Baker*) ..... 402
745. flammaxillaris (*Blyth*) ..... 403
966. flammaxillaris flammaxillaris (*Blyth*) .... 403
967. flammaxillaris andamanica (*Hume*) .... 404
746. minima (*Sykes*) ..... 405
747. zeylonica (*Linn.*) ..... 406
289. Genus Anthreptes *Swainson* ..... 408
748. hypogrammica (*S. Müll.*) ..... 408
968. hypogrammica hypogrammica (*S. Müll.*) .. 408
749. malacensis (*Scop.*) ..... 409
969. malacensis malacensis (*Scop.*) ..... 409
750. rhodolæma *Shelley* ..... 411
751. simplex (*S. Müll.*) ..... 411
970. simplex xanthochlora (*Hume*) ..... 412
Subfamily Arachnotherinæ ..... 413
290. Genus Arachnothera *Temm.* ..... 413
752. chrysogenys (*Temm.*) ..... 413
971. chrysogenys intensiflava *Stuart Baker* .. 413
753. magna (*Hodgs.*) ..... 414
972. magna magna (*Hodgs.*) ..... 414

XXX. Family NECTARINIIDÆ (*cont.*).
290. Genus Arachnothera (*cont.*). Page
973. magna aurata (*Blyth*) ..... 416
754. affinis (*Horsf.*) ..... 417
974. affinis modesta (*Eyton*) ..... 418
755. longirostra (*Lath.*) ..... 418
975. longirostra longirostra (*Lath.*)..... 418

XXXI. Family DICÆIDÆ ..... 420
291. Genus Dicæum *Cuvier*..... 421
756. cruentatum (*Linn.*) ..... 421
976. cruentatum cruentatum (*Linn.*) ..... 421
977. cruentatum ignitum (*Begbie*) ..... 423
978. cruentatum siamensis *Kloss*..... 424
757. trigonostigma (*Scop.*) ..... 424
979. trigonostigma rubropygium *Stuart Baker*. 425
758. chrysorrheum (*Temm.*) ..... 426
980. chrysorrheum intensum *Stuart Baker*.... 426
981. chrysorrheum chrysochlore (*Blyth*)..... 427
759. ignipectum (*Hodgs.*)..... 427
982. ignipectum ignipectum (*Hodgs.*)..... 427
760. minullum *Swinhoe* ..... 429
983. minullum concolor (*Jerdon*) ..... 429
984. minullum subflavum *Stuart Baker* ..... 430
985. minullum olivaceum (*Walden*) ..... 430
986. minullum virescens (*Hume*) ..... 431
761. erythrorhynchum (*Lath.*) ..... 432
987. erythrorhynchum erythrorhynchum (*Lath.*) 432
988. erythrorhynchum ceylonensis *Babault* .. 433
292. Genus Acmonorhynchus *Oates*..... 433
762. vincens (*Sclater*) ..... 434
293. Genus Piprisoma *Blyth* ..... 434
763. squalidum (*Burton*)..... 435
989. squalidum squalidum (*Burton*) ..... 435
990. squalidum modestum (*Hume*)..... 436
294. Genus Prionochilus *Strickl*..... 437
764. ignicapillus (*Eyton*)..... 437
765. maculatus (*Temm.*) ..... 438
295. Genus Pachyglossa *Hodgs.*..... 439
766. melanoxantha *Hodgs.*..... 439

Suborder ANISOMYODI ..... 441

XXXII. Family PITTIDÆ ..... 441
296. Genus Anthocincla *Blyth* ..... 442
767. phayrei *Blyth* ..... 442
297. Genus Pitta *Vieill.*..... 443
768. nepalensis (*Hodgs.*)..... 444
769. oatesi (*Hume*) ..... 446
770. cœrulea cœrulea (*Raffles*) ..... 447
771. cyanea *Blyth* ..... 448

XXXII. Family Pittidæ (*cont.*).
297. Genus Pitta (*cont.*). Page
991. cyanea cyanea (*Blyth*) ..... 448
772. moluccensis (*Müller*) ..... 450
773. megarhyncha *Schleg.* ..... 452
774. brachyura (*Linn.*) ..... 453
775. granatina *Temm.* ..... 454
992. granatina coccinea (*Eyton*) ..... 454
776. cucullata *Hartl.* ..... 455
993. cucullata cucullata (*Hartl.*) ..... 455
994. cucullata abbotti (*Richmond*) ..... 457
777. gurneyi *Hume* ..... 457

XXXIII. Family Eurylaimidæ ..... 459
298. Genus Eurylaimus *Horsf.* ..... 461
778. javanicus *Horsf.* ..... 461
995. javanicus javanicus (*Horsf.*) ..... 461
779. ochromalus *Raffles* ..... 463
299. Genus Corydon *Lesson* ..... 464
780. sumatranus (*Raffles*) ..... 464
996. sumatranus sumatranus (*Raffles*) ..... 464
300. Genus Cymbirhynchus *Vigors* ..... 466
781. macrorhynchus (*Gmel.*) ..... 466
997. macrorhynchus macrorhynchus (*Gmel.*) .. 466
782. affinis *Blyth* ..... 468
301. Genus Serilophus *Swainson* ..... 469
783. lunatus *Gould* ..... 469
998. lunatus lunatus (*Gould*) ..... 469
784. rubropygius (*Hodgs.*) ..... 470
302. Genus Psarisomus *Swainson* ..... 472
785. dalhousiæ (*Jameson*) ..... 472
303. Genus Calyptomena *Raffles* ..... 475
786. viridis *Raffles* ..... 475

## Family IRENIDÆ.

Stoliczka, J. A. S. B., xxxix, p. 318 (1870).

Type, *Irena puella*.

The characters of the only genus and the family are the same.

The position of this bird is one of some difficulty, as it appears to have no very near relations among other families.

The young are heavily streaked, showing in this respect an approach to the *Oriolidæ*.

The bill is nearly as long as the head, stout, rather curved and slightly notched at the tip; the nostrils are oval and partly concealed by the frontal plumes and the rictal bristles are well developed. A few hairs spring from the nape, a character which induced Oates to place these birds near the Bulbuls in his *Crateropodidæ*. The wing is long but rounded, the 4th quill longest; the tarsus very short but stout as in *Cochoa*. The under and upper tail-coverts are very long, in one race reaching to the tip of the tail, which is rather short.

### Genus IRENA.

*Irena* Horsf., Trans. L. S., xiii, p. 153 (1822).

Type, *Irena puella*.

Horsfield himself designates *puella* as the type. Characters those of the family.

### Irena puella.

*Key to Subspecies.*

A. Upper and under tail-coverts reaching to within about an inch and a half to an inch of the tip of the tail ..... *I. p. puella*, p. 1.

B. Upper and under tail-coverts reaching to within a few millimetres of the tip of the tail, or equally long ..... *I. p. cyanea*, p. 3.

### (950) Irena puella puella.

The Fairy Blue-bird.

*Coracias puella* Lath., Ind. Orn., i, p. 171 (1790) (India).
*Irena puella*. Blanf. & Oates, i, p. 240.

**Vernacular names.** *Hnet-pya-sate* (Burmese); *Dao-gatang* (Cachari); *Pana-kara-kuravi* (Tel.).

**Description.—Adult male.** Crown, nape, back to upper tail-coverts, lesser and median wing-coverts brilliant ultramarine, generally tinged with lilac; remainder of plumage deep velvety black; the inner greater coverts tipped with ultramarine. In very freshly-moulted birds the black parts in certain lights have deep blue reflections.

**Colours of soft parts.** Iris orange-chrome to crimson; bill, legs and feet black.

**Measurements.** Total length about 270 mm.; wing 121 to 135 mm.; tail 89 to 107 mm.; tarsus 18 to 19 mm.; culmen 21 to 23 mm.

**Female.** Lores and round the eye blackish; quills dark brown; greater coverts and secondaries suffused with green; tail dark brown, the two central feathers and tips of next two pairs suffused with ultramarine; remainder of plumage dull blue-green.

**Colours of soft parts.** Iris orange to vermilion; bill, feet and claws black.

**Measurements.** Wing 118 to 137 mm.

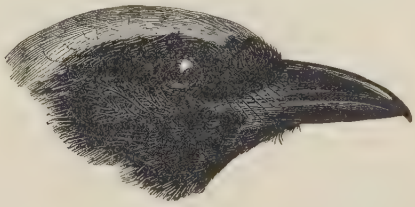


Fig. 1.—Head of *I. p. puella.*

**Young male** similar to the female but with the feathers of the upper parts fringed with brighter blue, varying much in degree.

It is very difficult to say whether the adult plumage is acquired by moult or by pigmentation of the feathers. Many specimens in the British Museum seem to be acquiring the change of colour by moult, whilst in other specimens the feathers themselves seem to be changing colour; this refers both to the black and blue portions of the plumage.

Quite young birds have the upper parts heavily streaked with black.

**Distribution.** Lower hills of Travancore, Malabar, Nilgiris and adjoining ranges, north to Nelliampathy Hills and Kanara. Himalayas from Sikkim and Bhutan to Eastern Assam; the whole of Burma, Siam, Annam, Cochin China and South to the Malay Peninsula, where it grades into the next race, *I. p. cyanea.*

The *type-locality* of *I. p. puella* may be restricted to Malabar.

**Nidification.** The Fairy Blue-bird breeds from the South of Travancore to Kanara and Khandesh from February to June but principally in March and April. Davison and Bingham took

nests in April in Tenasserim, whilst in the Assam Hills it breeds in May and early June. The nest is a rather flimsy, shallow cup of roots, fine twigs and tendrils, much mixed with moss and lined with moss-roots. It may be placed on any high bush or small sapling between eight and twenty feet from the ground but, practically invariably, in evergreen forest. The eggs are always two in number; in shape rather long ovals though obtuse at the smaller end. In colour the ground varies from a pale grey stone-colour to a rather warm buff or reddish grey. The markings consist of rather longitudinal blotches of dull neutral-tint brown; in some they are all very grey in colour, in others they are a purer redder brown. The secondary marks are more mottled in character and are grey, greenish grey, or purplish neutral tint. In the majority of the eggs the marks are numerous everywhere, in others more scanty and confined principally to the larger end. Forty eggs average 28·2 × 20·2 mm.: maxima **30·7** × 20·5 and 30·5 × **21·3** mm.; minima **25·3** × 19·3 and 28·2 × **18·9** mm.

**Habits.** This beautiful bird is an inhabitant of evergreen forests at low levels, being found occasionally in the foot-hills under 500 feet and wandering as high as some 4,000 feet or even 5,000. I have only seen it in pairs but, where more common, it is said to associate in small parties. It affects both the lower bushes and high trees, feeding on the fruit of both as available. It has the quick, level flight of a Thrush and is a shy, retiring bird, resenting observation.

## (951) Irena puella cyanea.

THE MALAY FAIRY BLUE-BIRD.

*Irena cyanea* Begbie, Malayan Peninsula, p. 516 (1834) (Malayan Pen.).

**Vernacular names.** None recorded.

**Description.** Male and female only differ from the same sexes of the Indian Fairy Blue-bird in having longer upper and lower tail-coverts, the latter reaching almost to the tip of the tail. This feature varies however very considerably, and individuals are met with over the whole of the Malayan Peninsula with coverts almost as short as those of the Northern form.

**Colours of soft parts** as in *I. p. puella*.

**Measurements.** Wing 115 to 125 mm.; tail 85 to 95 mm.; tarsus 18 mm.; culmen 21 to 22 mm. male, 19 to 20 mm. female.

**Distribution.** Malay Peninsula. I have seen one specimen from South of Mergui which must be referred to this race.

**Nidification unknown.**

**Habits.** Similar to those of the preceding bird.

# Family ORIOLIDÆ.

The intrinsic muscles of syrinx fixed to the ends of the bronchial semi-rings; the edges of both mandibles are smooth, the upper one simply notched; hinder aspect of tarsus smooth, composed of two entire longitudinal laminæ; wing with ten primaries; tongue non-tubular; nostrils clear of the line of the forehead, the lower edge of the nostril nearer to the commissure than the upper edge is to the culmen; plumage of the nestlings streaked; rictal bristles present; rectrices 12; the female generally duller than the male; an Autumn moult only.

The family *Oriolidæ* comprises a number of birds found throughout the tropical and temperate regions of the Old World and represented in America by the genera *Mimeta* and *Spheco-theres*. In the Cat. Birds Sharpe included the first of these in *Oriolus*.

## Genus **ORIOLUS**.

*Oriolus* Linn., Syst. Nat., 12th ed., i, p. 160 (1766).

Type, *Oriolus galbula* (=*O. oriolus*).

This genus comprises five Indian species of birds, some of which are known over the greater part of India under the trivial name of "Mango bird." The prevailing colour of this genus is yellow and black, in one species only being red and black. The young are densely streaked below and retain traces of these streaks in their plumage for some time, the males until the end of their second year and the females for longer still.

In this genus the bill is about as long as the head, the culmen is generally curved and the tip notched and bent; the nostrils are lengthened and exposed; the rictal bristles are fairly strong; the head is never crested; the wing is long and pointed, with the first primary longer than half the second; the tail is much shorter than the wing and slightly graduated; the tarsus is short and scutellated.

*Key to Species.*

A. General colour black and yellow.
  *a*. Crown yellow or greenish yellow; nape black ..... *O. chinensis*, p. 7.
  *b*. Both nape and crown yellow or greenish yellow.
    *a'*. Wing over 130 mm. ..... *O. oriolus*, p. 5.
    *b'*. Wing under 120 mm..... *O. xanthonotus*, ♀, p. 13.

c. Whole nape and crown black.
c'. Abdomen white or yellowish white streaked with black ..... *O. xanthonotus*, ♂, p. 13.
d'. Abdomen plain yellow ..... *O. xanthornus*, p. 11.
B. General colour black and red ..... *O. traillii*, p. 14.

## Oriolus oriolus.

*Coracias oriolus* Linn., Syst. Nat., 10th ed., p. 107 (1758).

Type-locality: Sweden.

*Key to Subspecies.*

A. Black of lores not extending behind eye..... *O. o. oriolus*, p. 5.
B. Black of lores extending to behind the eye.... *O. o. kundoo*, p. 6.

## (952) Oriolus oriolus oriolus.

THE EUROPEAN ORIOLE.

*Coracias oriolus* Linn., Syst. Nat., 10th ed., p. 107 (1758) (Sweden).
*Oriolus galbula.* Blanf. & Oates, i, p. 505.

**Vernacular names.** *Pilak* (Hind.); *Pashnool* (Kashm.).

**Description.—Adult male.** Lores black; inner secondaries black with yellow tips; wing-coverts and primary-coverts black, the latter tipped with yellow; primaries black with narrow margins and tips of yellowish white; middle tail-feathers black with narrow yellow tips, the lateral feathers with the yellow increasing until the outer feather is nearly all yellow; remainder of plumage bright yellow.

**Colours of soft parts.** Iris crimson-pink to deep crimson; eyelids pinkish; bill dull livid pink to brownish red; legs and feet plumbeous grey.

**Measurements.** Total length about 250 to 260 mm.; wing 146 to 160 mm.; tail 85 to 99 mm.; tarsus about 21 to 24 mm.; culmen 23 to 26 mm.

**Adult female** differs from the male in having the yellow of the upper parts tinged with green. The central tail-feathers are often also tinged with green, and the underparts are whiter and are streaked with dull brown.

**Colours of soft parts.** Iris dull pinkish; remainder as in the male.

**Measurements.** A trifle smaller than the male.

**Young male.** Similar to the female but the yellow less pure and the streaks on the underparts darker and more numerous.

**Nestling.** Dull pale green; the black of the wings and tail, where showing, dull and brownish; the lower parts profusely and strongly streaked; the upper parts faintly so.

**Distribution.** The whole of Southern and Central Europe, straggling as far North as Great Britain; Northern Africa, Asia Minor, Palestine, Mesopotamia, Persia, Russian Turkistan, straggling into North-western India in the Winter.

**Nidification.** The Golden Oriole breeds during May and early June, making a nest quite similar to that of the next race and laying eggs which can only be distinguished by their greater size. According to Jourdain, 100 eggs average 30·87 × 21·3 mm.: maxima **36·0** × 22·2 and 32·0 × **23·5** mm.; minima **28·0** × 20·3 and 31·0 × **20·0** mm. The number of eggs laid is generally four or five.

**Habits.** These call for no remark, as they are practically the same as those of the Indian subspecies next described.

## (953) Oriolus oriolus kundoo.

THE INDIAN ORIOLE.

*Oriolus kundoo* Sykes, P. Z. S., 1832, p. 87 (Deccan, India); Blanf. & Oates, i, p. 504.

**Vernacular names.** *Pilak* (Hind.); *Vanga-pandu* (Tel.); *Pawseh* (Mahr.); *Pashnool* (Kashm.).

**Description.—Adult male.** Similar to the preceding race, but the black of the lores extends to behind the eye and the yellow colour is generally deeper and richer. The yellow on the tail-feathers is also greater in extent, the black on the outermost being merely confined to the base of the outer web.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 135 to 142 mm.; culmen 24 to 29 mm.

**Female** and **Young birds** differ from the male, as do those of the European birds.

**Distribution.** The Indian Oriole is found over the whole continent of India from Cape Comorin throughout the Himalayas as far North as Pskem, about 60 miles North-East of Tashkent. To the East, Calcutta is apparently the farthest point, a bird having been obtained there by myself. It is common in Behar and in Western Bengal but occasional only in Eastern Bengal.

**Nidification.** The Indian Golden Oriole appears to breed in May and June throughout its whole range, a few birds laying in April and in July and August. The nest is a deep pendent cup, very compactly made of soft grass and fibrous material, sometimes mixed with other odds and ends, such as leaves, scraps of cloth, etc. The materials are neatly wound round the twigs of the fork from which it is suspended and the lining, if any, consists of grass only. It may be placed on an outer branch of any kind of tree in orchard, garden, or roadside and, whilst generally it is between six and twenty feet from the ground, it

may sometimes be found placed much higher still. The eggs number two to four, most often three. The ground-colour varies from white to the faintest cream, deeply-tinted eggs being very rare in this species. The spots consist of bold spots and small blotches of blackish rarely mixed with others of deep purplish or with specks and blotches of reddish brown. These are confined chiefly to the larger end and are sparse even there. In shape the eggs are typically long ovals and the surface has a fine gloss. One hundred eggs average 29·0 × 21·1 mm.: maxima **32·5** × 21·5 and 27·0 × **22·3** mm.; minima **25·0** × **19·6** mm.

**Habits.** The Indian Oriole is found from the level of the Plains all over India up to some 5,000 feet in the Himalayas, but apparently not much over 4,000 feet in Southern India. It deserts the Himalayas in Winter and does not then occur above 2,000 feet. It is a bird of gardens, orchards and open country and is not seen in forests. Its curious dipping flight and its beautiful call of pure loud melodious notes are familiar to every European in India. Its diet is chiefly fruit but it also eats freely insects of many kinds.

## Oriolus chinensis.

*Oriolus chinensis* Linn., Syst. Nat., 12th ed. i, p. 160 (1766).

Type-locality: Manila, Philippines (Meinertzhagen, Ibis, 1923, p. 71).

Linné's *chinensis* is the same as Brisson's *indicus* (Orn. ii, p. 328, 1760), which, again, is the same as Buffon's (Pl. Enl., p. 281, 1774) and of Aldrovandus (viii, p. 862, 1599). The first time that *indicus* is used as a binomial is in Jerdon's Ill. Ind. Orn. 1847.

*Key to Subspecies.*

A. Outer web of secondaries broadly yellow.
  *a.* Nape-band more than 12 mm. wide; bill stout ..... *O. c. indicus*, p. 7.
  *b.* Nape-band narrow, never more than 12 mm. wide; bill slender ..... *O. c. tenuirostris*, p. 9.
B. Outer web of secondaries showing very little yellow.
  *c.* Wing under 140 mm. ..... *O. c. andamanensis*, p. 10.
  *d.* Wing over 150 mm. ..... *O. c. macrourus*, p. 10.

## (954) Oriolus chinensis indicus.

THE INDIAN BLACK-NAPED ORIOLE.

*Oriolus indicus* Jerdon, Ill. Ind. Orn., pl. 15 (1847) (Malabar); Blanf. & Oates, i, p. 502.

**Vernacular names.** Not usually distinguished from the more common Orioles. *Pilak* (Hind.).

**Description.—Adult male.** Lores and a streak through the eye meeting in a band on the nape black; primary-coverts black with broad yellow tips; primaries black, all but the first with narrow white edges and tips; secondaries black with broad golden-yellow margins, the innermost entirely yellow on the outer web; tail black, the central rectrices narrowly tipped yellow, the lateral with broad yellow tips increasing to about half the length of the feather on the outermost; remainder of plumage golden yellow.

**Colours of soft parts.** Iris blood-pink; eyelids paler; bill livid pink, brighter in summer; legs and feet dark plumbeous, claws black.

**Measurements.** Total length about 260 mm.; wing 147 to 155 mm.; tail 89 to 95 mm.; tarsus about 24 mm.; culmen 28 to 31 mm.

**Female.** Much duller than the male; the back and, almost always, the forehead and crown are tinged with green; the black of the wing-quills and rectrices is more brown and the tail is suffused with green; in all but very old females the breast is faintly streaked with blackish.

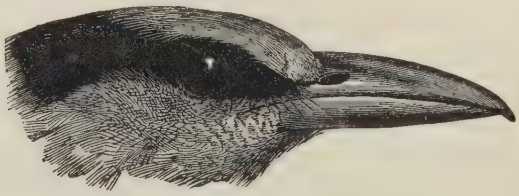


Fig. 2.—Head of *O. c. indicus*.

**Colours of soft parts** as in the male but duller.

**Measurements** about the same as in the male.

**The Young male** is like the female but has no trace of the black loreal and nuchal band; the underparts and breast are paler, more whitish and are heavily streaked with black from the breast to the vent. The iris dull grey-blue at first, dull pinkish grey at a later stage; the bill is dark brown or slaty-brown.

**Nestling.** The yellow above replaced with dull greenish faintly streaked with brown; the nape and head is more yellow and more definitely streaked; below white suffused with lemon and with broad central streaks of black; under tail-coverts golden yellow.

**Distribution.** This Oriole breeds in the northern parts of Eastern China, Manchuria and Korea, west to Dauria and Usuriland. South it breeds throughout Southern China and also in Hainan and Formosa and it is possible that it also breeds in Yunnan, the Northern Shan and Kachin Hills at about 5,000 feet. In Winter the birds migrate from their more northern altitudes and then come freely into the Indo-Chinese country, the Malay

Peninsula and Southern Burma, straggling thence in smaller numbers to Northern Burma, Assam, North-Eastern India and thence again South to Madras, the Malabar Coast, Travancore and Ceylon.

**Nidification.** Mr. J. D. La Touche found this Oriole breeding in Chinwangtao in North-East Chihli in June and July and obtained nests both at Shanhaikwan and in the mountains in the vicinity. He also found it breeding freely in Fohkien. Three eggs given by him to me have the ground-colour a warm salmon-pink, the primary spots being rich red and the subsidiary blotches dark neutral tint. They measure 31·4 × 22·0, 30·4 × 20·8 and 28·2 × 21·8 mm. Mr. La Touche gives the average of twelve eggs as 1·12 × ·82 inches. The nest Mr. La Touche describes as being very similar to that of the European Oriole and says that the bird breeds in gardens close to houses.

**Habits.** Quite typical of the Orioles, frequenting gardens and open, cultivated country and having the usual liquid notes and dipping flight.

## (955) Oriolus chinensis tenuirostris.

THE BURMESE BLACK-NAPED ORIOLE.

*Oriolus tenuirostris* Blyth, J. A. S. B., xv, p. 48 (1846) (Central India); Blanf. & Oates, i, p. 503.

**Vernacular names.** *Pilak* (Hind.); *Sa-nwin-wa* (Burmese).

**Description.** Similar to *O. c. indicus* but with the nape band narrower; the back in the male duller and more green and with the bill decidedly more slender.

**Colours of soft parts** and **Measurements** much the same as in the preceding bird. Wing 142 to 155 mm.; culmen 30 to 33 mm.

**Distribution.** Breeding in the Lower Himalayas from East Nepal to Assam; Manipur; Tippera and Chittagong in Eastern Bengal; all Burma South to Tenasserim; Kachin Hills, Shan States, Yunnan and Siam. In Winter in the Plains of Cachar, Sylhet, Dacca and Mymensingh.

**Nidification.** I found this bird breeding commonly from the foot-hills up to 4,000 feet in the Hills of Assam and, occasionally, up to 6,000 feet. Hopwood found it breeding at Monywa in Upper Burma between 3,000 and 4,000 feet. The eggs are like those of *Oriolus o. oriolus* but nearly always have a warm pink ground whilst the markings are red or purple-brown rather than black. In two clutches taken by myself the ground-colour is a yellowish pink and the markings are all light chestnut. Thirty eggs average 27·9 × 20·7 mm.: maxima **29·6 × 21·7** mm.; minima **26·1** × 19·3 and 27·3 × **19·0** mm.

The nests are just like those of all other Orioles but this species may sometimes be found breeding in open deciduous forests

and, in Cachar, I found most nests attached to creepers on oaks growing in park-like country.

They breed during May and June.

**Habits.** Those of the genus but they are not so exclusively birds of the open country. In the Khasia Hills I found them on the outskirts of oak and rhododendron forests where it was interspersed with grass glades, whilst in Cachar it occurs in open oak forests.

## (956) Oriolus chinensis macrourus.

THE NICOBAR BLACK-NAPED ORIOLE.

*Oriolus macrourus* Blyth, J. A. S. B., xv, pp. 46, 370 (1846) (Nicobars).
*Oriolus macrurus.* Blanf. & Oates, i, p. 503.

**Vernacular names.** None recorded.

**Description.** Adult male very bright yellow above; the nape-band is decidedly more narrow than in *indicus* or *tenuirostris*; the yellow tips to the primary-coverts and inner secondaries are much smaller; the central rectrices are generally black.

**Colours of soft parts** those of the species.

**Measurements.** Wing 151 to 159 mm.; culmen 33 to 35 mm.

**Distribution.** Nicobars.

**Nidification** and **Habits.** Nothing recorded.

## (957) Oriolus chinensis andamanensis.

THE ANDAMAN BLACK-NAPED ORIOLE.

*Oriolus andamanensis* Tytler, Beavan, Ibis, 1867, p. 326 (South Andamans); Blanf. & Oates, i, p. 504.

**Vernacular names.** None recorded.

**Description.** The adult male is even brighter yellow above than is the preceding bird but has still less yellow on the wings and tail; the black nape-band is very narrow.

**Colours of soft parts** those of the species.

**Measurements.** This is the smallest of the races; wing 129 to 136 mm.; culmen 27 to 28 mm.

**Distribution.** Andamans only.

**Nidification.** Nest and eggs have been taken by Messrs. Osmaston, Wickham and Anderson and the first-named describes the nidification as follows:—"They breed from April to June, laying two or three eggs only. The nest is the usual cradle suspended from the leafy branch of some tree, and is usually decorated outside with sprays of a small climbing *Asclepiad* with orbicular leaves. The eggs are fairly glossy. The ground is white, more or less tinged with claret with dark purplish-brown spots which

appear to have run from the edges, and with a few underlying grey spots."

The average of fourteen eggs is 28·3 × 20·8 mm.

**Habits.** Those of the species but Osmaston says it is found both in forest and in open country.

## Oriolus xanthornus.

This unfortunate bird has been one of the greatest sufferers from the exigencies of modern nomenclature. Known for many years as *Oriolus melanocephalus*, Hartert then discovered that this name was antedated by another given to the same bird by Linnæus in 1758, whilst recently it has been discovered that yet a third name existed given by Linnæus in the same 10th ed. of his work on a previous page.

As *thaiacous* of Hartert cannot be maintained, there are only two races known of this widely-spread species.

*Key to Subpecies.*

A. Larger, wing always over 130 mm. .... *O. x. xanthornus*, p. 11.
B. Smaller, wing never exceeding 130 mm. *O. x. ceylonensis*, p. 12.

### (958) Oriolus xanthornus xanthornus.

THE INDIAN BLACK-HEADED ORIOLE.

*Coracias xanthornus* Linn., Syst. Nat., 10th ed., p. 108 (1758) (Bengal).
*Oriolus melanocephalus.* Blanf. & Oates, i, p. 506.

**Vernacular names.** *Pilak, Zardak* (Hind.); *Pirola* (Gorukpur); *Konda-vanga-pandu* (Tel.).

**Description.—Adult male.** Whole head, chin, throat and upper breast velvety black; winglet and primary-coverts black with yellow tips; primaries black with whitish edges and yellow tips to all but the first one, two, or three feathers; secondaries black with yellow edges and with broad diagonal terminal patches of yellow on the outer webs; central tail-feathers with the subterminal half black, the lateral tail-feathers with a similar band decreasing outwardly; this band varies greatly in individuals, generally being absent on the three outer pairs and, very rarely, on four pairs; less often extending to the third outer pair and sometimes even to a broad patch on the outermost; remainder of plumage golden yellow.

**Colours of soft parts.** Iris crimson; eyelids lead-colour; bill livid pink to pale crimson-pink (breeding-season), the mouth bright flesh-colour; legs bluish-plumbeous or plumbeous, the claws almost black.

**Measurements.** Total length about 250 mm.; wing 131 to 142 mm.; tail 83 to 93 mm.; tarsus 24 to 25 mm.; culmen 26 to 30 mm.

**Adult female.** Forehead yellow; the black of the upper head duller and more or less streaked with yellowish; the black of the wings and tail also duller and tinged with green on the latter; chin, throat and upper breast dull yellowish white streaked with black; yellow everywhere paler and duller and often tinged with green on the mantle.

**Colours of soft parts** as in the male but duller, the iris never so deep and bright a crimson.

**Young male** like the female but with the head blacker.

**Nestling** like the female but with the yellow of the upper plumage broadly streaked with black; the whole lower plumage pale yellow narrowly streaked with black.

**Distribution.** The whole of India, excluding the extreme South of Travancore and North-West India West of a line from the Sutlej to Kathiawar; Assam, Manipur, the whole of Burma to Tenasserim and Northern Malay States, Siam, Shan States, Cochin China and Annam. Osmaston says that he saw this species in the Andamans "not uncommon in the Hot Weather."

With more material available for comparison I find that it is impossible to keep separate *O. x. thaiacous* Hartert. The characteristics he relied on do not hold good and many birds from India, especially from the South-West, have these more highly developed than have birds from Siam, the type-locality of *thaiacous*.

**Nidification.** The Indian Black-headed Oriole breeds from February to July over the greater part of its range, most eggs being laid in April and May. Mr. S. C. Law found nearly fully-fledged young near Calcutta on the 23rd March and I have seen eggs taken in August. The nest cannot be distinguished from that of *O. o. kundoo*, though it may average smaller and neater. The eggs differ distinctly in being smaller, more pink in ground-colour and, generally, much less glossy. The markings normally are light reddish brown to deep purple but are never black. Sixty eggs average 28·0 × 19·4 mm.: maxima **31·6 × 21·3** mm.; minima **24·0** × 19·4 and 26·5 × **18·0** mm. The number of eggs laid is three, sometimes two only and very rarely four.

**Habits** do not differ from those of *O. o. kundoo*, though it is perhaps even more confiding and tame than that species.

## (959) Oriolus xanthornus ceylonensis.

THE CEYLON BLACK-HEADED ORIOLE.

*Oriolus ceylonensis* Bonaparte, Consp. Av., i, p. 347 (1850) (Ceylon).
*Oriolus melanocephalus.* Blanf. & Oates, i, p. 506.

**Vernacular names.** *Ka-karulla* (Cing.); *Mamkoel*, *Mambala-Kuravi* (Tam. in Ceylon).

**Description.** Sex for sex similar to those of the preceding race, but smaller and with less yellow on the wings, especially on the innermost secondaries.

**Colours of soft parts** as in the Indian Black-headed Oriole.

**Measurements.** Wing 122 to 130 mm.; culmen 27 to 29 mm.

**Distribution.** Ceylon and the extreme South of Travancore.

**Nidification.** Similar to that of the preceding birds but the eggs are much paler, generally almost pure white and they are also much smaller. Average of forty eggs 27·0 × 19·4 mm.: maxima **29·4** × 21·0 and 29·3 × **21·2** mm.; minima **23·5** × **18·9** mm. The normal full clutch is two, rarely three.

There appear to be two breeding-seasons, February to May and again October to early December.

**Habits.** Those of the species.

## (960) Oriolus xanthonotus xanthonotus.

THE MALAY BLACK-HEADED ORIOLE.

*Oriolus xanthonotus* Horsf., Trans. L. S., xiii, p. 152 (1822) (Java); Blanf. & Oates, i, p. 505.

**Vernacular names.** *Sa-nwin-wa* (Burmese).

**Description.—Adult male.** Whole head, extreme upper back, chin, throat and breast black; lesser wing-coverts yellow, median coverts black with yellow tips, greater coverts black; primaries black, all but the first, or first and second, with narrow whitish edges; secondaries black with narrow yellow margins; upper plumage golden yellow; tail black, the lateral rectrices with yellow patches on the inner webs at their tips increasing in size towards the outermost; breast, flanks and abdomen white with broad black streaks and sometimes a wash of cinnamon; under tail-coverts yellow with a few black streaks; under wing-coverts black and yellow. The flanks are generally washed with yellow.

**Colours of soft parts.** Iris crimson; bill pale to dark fleshy or fleshy-brown; legs and feet plumbeous, the claws blackish.

**Measurements.** Total length about 240 mm.; wing 104 to 110 mm.; tail 66 to 70 mm.; tarsus 19 to 20 mm.; culmen 20 to 21 mm.

**Adult female.** Whole upper plumage olive-yellow, slightly darker on the crown; tail darker olive with black shafts and all but the centre pair with yellow tips to the inner webs and with blackish sub-tips; wing-coverts olive, the median and greater coverts often with cinnamon edges; primary-coverts and primaries brown with pale edges, as in the male; secondaries olive-green; lower plumage white, tinged with grey and dully streaked with grey-brown on the chin and throat, boldly streaked with black on the lower breast, abdomen and flanks; under tail-coverts bright yellow.

**Colours of soft parts** as in the male but duller.

**Nestling** like the female but with the head greyish and the cinnamon edges to the wings more conspicuous.

**Distribution.** The extreme South of Tenasserim through the Malay States and South-West Siam to Sumatra and Java.

**Nidification.** Two nests and eggs sent me by Mr. W. A. T. Kellow are typical Oriole's, but are very small, the latter measuring from 25·5 × 19·2 mm. to 26·0 × 19·8 mm. The ground-colour is a warm pink, the markings being of chestnut-brown underlaid with others of lavender. They were both taken in the end of February.

**Habits.** Those of the genus.

## (961) Oriolus traillii.

THE MAROON ORIOLE.

*Pastor traillii* Vigors, P. Z. S., 1831, p. 175 (Himalayas, *Darjiling*).
*Oriolus traillii.* Blanf. & Oates, i, p. 508.

**Vernacular names.** *Melambok* (Lepcha); *Tania-pia* (Bhut.).

**Description.—Adult male.** Whole head and neck glossy black; wings and thigh-coverts dull black; tail chestnut-maroon; remainder of plumage deep crimson maroon, highly glossed.

**Colours of soft parts.** Iris pale buff to deep orange-yellow; bill bluish lead-colour, paling towards the tip; legs and feet plumbeous, the claws tipped blackish.

**Measurements.** Total length about 280 mm.; wing 142 to 152 mm.; tail 101 to 111 mm.; tarsus 28 to 29 mm.; culmen 29 to 31 mm.

**Female.** Head and neck glossy black; mantle dull maroon-brown, gradually changing to crimson-maroon on the rump and upper tail-coverts; tail chestnut-maroon, the central feathers and outer webs of the lateral feathers maroon-brown; lower plumage greyish white, darkest on breast and flanks and albescent on the centre of the abdomen, streaked throughout with blackish; old females are often tinged with crimson on the flanks; under tail-coverts crimson-maroon; thigh-coverts blackish.

**Colours of soft parts** as in the male but duller.

**The Young male** is like the female but more richly coloured and with the lower parts whiter, less grey-brown; the flanks and breast are more suffused with crimson.

**Nestling.** Above brown, rather darker on the crown, the feathers of the mantle and the wing-coverts edged with rufous; rump brown, streaked darker and suffused with chestnut; tail-feathers maroon-brown, the inner webs of all the lateral feathers chestnut-pink; chin and throat brownish white, streaked with dark brown; breast almost entirely brown; abdomen and flanks white with brown centres; thigh-coverts dark brown; under tail-coverts pale pinkish chestnut.

**Distribution.** Throughout the Himalayas from the Sutlej Valley to Eastern Assam, Manipur, the Hilly tracts of Burma to Tenasserim, Shan States, Siam and Annam.

Nainital

I can trace no constant differences in the plumage of this bird necessitating its division into geographical races.

**Nidification.** The Maroon Oriole breeds in the Hills of Assam between 2,000 and 6,000 feet during May and June and in Sikkim during April and May. The nest is a typical Oriole's and the eggs are like those of the European Oriole but with a pink ground-colour, generally fairly deep in tint. The surface of the shell is very glossy. Twenty-four eggs average 29·4 × 20·6 mm.: maxima 30·7 × 21·0 and 28·9 × 21·7 mm.; minima 26·3 × 21·4 and 30·5 × 18·1 mm.

**Habits.** The Maroon Oriole is far more a forest bird than is any of its yellow cousins, even the Malay Golden Oriole. It is also a wilder, more shy bird. Otherwise, except that its flight seems more direct and rapid and less undulating, it differs in no respects from these birds. In North Cachar I found it fed largely on the fruit of the various *Fici* when these were ripe.

## Family EULABETIDÆ.

The intrinsive muscles of the syrinx fixed to the ends of the bronchial semi-rings; the edges of the mandibles smooth or the upper one simply notched; hinder aspect of tarsus longitudinally bilaminated, the laminæ entirely smooth; wing with ten primaries; tongue non-tubular and rather fleshy; nostrils always clear of the line of forehead, the space between the nostrils and the edge of the mandible less than the distance between the nostril and the culmen; plumage of the nestling streaked; rictal bristles present; sexes alike; rectrices twelve; first primary small; one moult in the year.

The only structural difference between the *Eulabetidæ* and *Sturnidæ* is the presence of rictal bristles in the former and their more fleshy tongue. The genera *Lamprocorax* and *Saroglossa* are very like the birds of the genus *Sturnia* in all their ways and to some extent link the two families together.

*Key to Genera.*

A. Fleshy wattles present on the head ..... EULABES, p. 16.
B. No fleshy wattles on sides or nape of head.
  *a*. Tail nearly square; sexes alike ..... LAMPROCORAX, p. 21.
  *b*. Tail strongly graduated; sexes different .. SAROGLOSSA, p. 24.

### Genus **EULABES.**

*Eulabes* Cuvier, Règne Anim., i, p. 377 (1829).

Type, *Eulabes intermedius* (A. Hay).

The genus *Eulabes* contains the Grackles or Talking Mynas, resident birds found over a great portion of the better-wooded parts of the Indian Empire.

In *Eulabes* nearly the whole plumage is a glossy black, but the most distinctive feature is the presence of fleshy wattles on the nape usually accompanied by bare skin on the sides of the head. The bill is thick, high and curved, shorter than the head; the rictal bristles are present but weak; the feathers of the crown are very short and curved inwards, with indications of parting down the middle of the crown; the wing is rather blunt with a small first primary; the tail is short and nearly square; the feet are exceptionally strong.

*Key to Species.*

A. Some bare skin on sides of head
  *a*. Two elongate bare patches of skin on the nape ..... *E. religiosa*, p. 17.
  *b*. No bare patches of skin on nape ..... *E. javana*, p. 18.
B. No bare skin on sides of head..... *E. ptilogenys*, p. 21.

## (962) Eulabes religiosa.

THE SOUTHERN GRACKLE.

*Gracula religiosa* Linn., Syst. Nat., 12th ed. i, p. 154 (1766) (Asia. *Travancore*).
*Eulabes religiosa.* Blanf. & Oates, i, p. 510.

**Vernacular names.** *Kokirri maina* (Hind.); *Konda-gorinka* (Tel.).

**Description.** A white patch at the base of the primaries; portions of the head as shown in the figure below bare; remainder of plumage black, glossed on the head, scapulars and upper back with purple and on the breast and remaining upper plumage with green.

**Colours of soft parts.** Iris brown with an outer ring of white; bill orange-yellow; lappets and bare skin on the head yellow to orange-yellow; legs and feet bright yellow.

**Measurements.** Total length about 250 to 260 mm.; wing 136 to 143 mm.; tail 64 to 66 mm.; tarsus about 30 mm.; culmen 23 to 25 mm.

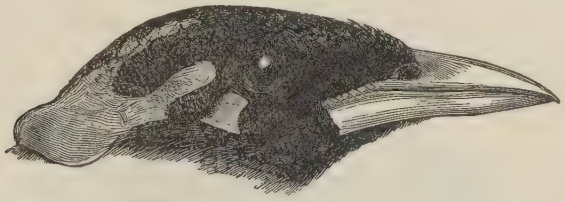


Fig. 3.—Head of *E. religiosa*.

**Young birds** are dull brown-black throughout, the feathers of the flanks and abdomen narrowly fringed with whitish. The bare skin on the head is less in extent and there are no lappets.

**Distribution.** Nothing new has been added to the distribution of this Grackle since Oates wrote the first volume of the 'Avifauna.' It is found throughout Ceylon up to some 2,000 feet, and throughout the forested Hills of South India as far North as Goomsur and the Northern Circars on the East and as far as North Kanara on the West.

**Nidification.** The Southern Grackle breeds principally from March to May, but also occasionally in January and February. Legge also records them breeding in August in Ceylon, whilst Wait gives June to August as the breeding-season for that island. In India they certainly nest as high as 4,000 feet, though more often at and under 2,000 feet. The eggs, two or three in number, are laid in natural hollows in trees between 10 and 30 feet from the ground. There is no real nest but sometimes a large amount of rubbish is collected; dead leaves, grass, feathers, cast snake-skins, etc.; at other times they are laid on the bare wood. In colour the eggs are a bright, deep Thrush's-egg blue; in some

they are richly, though sparsely, blotched and spotted with deep chocolate and reddish brown with underlying marks of lavender; in other eggs the markings are all faint and small and in others again the markings are intermediate. The colour of these eggs fades very quickly after they are first laid. Forty eggs average 31·6 × 23·0 mm.: maxima **35·5** × 23·4 and 32·9 × **24·8** mm.; minima **30·8** × 23·4 and 30·9 × **21·8** mm.

**Habits.** This Grackle is a bird of well-wooded and forested country and is especially partial to small cultivated clearings inside and on the outskirts of forest. Though not gregarious in the true sense of the word, they are very sociable and several will often be found feeding together. Their diet is mainly frugivorous but they also eat termites, grasshoppers and locust larvæ. Like all Grackles they have an immense repertoire of notes—melodious, noisy and raucous and they are admirable mimics, copying the notes of other birds freely in a wild state and learning to talk well in captivity.

## (963) Eulabes javana javana.

THE MALAY GRACKLE.

*Eulabes javanus* Cuvier, Règne Anim., i, p. 377 (1829) (Java).
*Eulabes javanensis.* Blanf. & Oates, i, p. 512.

**Vernacular names.** *Thaleegah* (Burma).

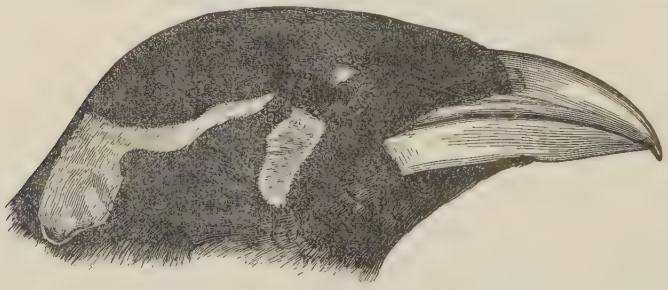


Fig. 4.—Head of *E. j. javana.*

**Description.** A broad patch of white at the base of the primaries; remainder of plumage black; crown, upper back and scapulars glossed with purple; breast glossed with green and purple and the remaining parts with deep green.*

**Colours of soft parts.** Iris brown; bill orange-red, coral-red at the tip and on the culmen; wattles and bare skin yellow to orange-yellow and more richly coloured in the breeding-season; the patch nearest the eye livid bluish; legs and feet yellow, the claws brownish.

**Measurements.** Total length about 300 to 310 mm.; wing

* The woodcut shows the division between the two patches in a rather exaggerated degree seldom seen in actual specimens.

172 to 182 mm.; tail 76 to 87 mm.: tarsus 35 to 36 mm.; culmen 26 to 27 mm. and in depth at the nostrils about 13 to 14·5 mm.

**Distribution.** Tenasserim South through the Malay Peninsula to Sumatra, Java and Borneo. Lat. 12° appears roughly to be the dividing line between this race and the next. Specimens in the British Museum from the South Andamans also appear to belong to this race.

**Nidification.** Bingham and Hopwood found eggs of this bird in Tenasserim in March and April, and Major J. C. Moulton took eggs for me on Mount Kina Balu, Borneo, in July. The eggs were laid in natural hollows with very little or no attempt at a nest; in appearance they do not differ from those of *E. religiosa* but are much bigger. The few I have seen vary between 33·0 × 23·6 and 36·1 × 25·5 mm.

**Habits.** Those of the genus.

## (964) Eulabes javana intermedia.

THE INDIAN GRACKLE.

*Gracula intermedia* A. Hay, Madr. Journ. Lit. Sci., xiii, pt. ii, p. 157 (1844) (Cachar).
*Eulabes intermedia.* Blanf. & Oates, i, p. 511.

**Vernacular names.** *Paharia maina* (Hind.); *Thaleegah* (Burma); *Dao-maina, Maina-gashim* (Cachari).

**Description.** Similar to *E. j. javana* but smaller; in this race the patch under the eye is joined to that on the ear-coverts, whereas in the preceding bird it is divided by a feathered tract.

**Colours of soft parts** as in the Malay Grackle. The bill is orange to coral-red at the base and more yellow at the tip.

**Measurements.** Total length about 380 to 390 mm.; wing 161 to 173 mm.; tail 74 to 82 mm.; tarsus 33 to 35 mm.; culmen 24 to 26 mm. and in depth about 11 to 12·5 mm.

**Distribution.** The Himalayas from Kuman to Eastern Assam and the whole of Burma, where suitable, as far South as lat. 12°; Siam, Shan States, Annam and Cochin China. It also occurs in the Hilly country in the South-Eastern Central Provinces of India.

**Nidification.** The Indian Grackle breeds during April and May from the foot-hills up to about 2,500 and, less commonly, up to 4,000 feet. Very often two, or even three pairs of birds will breed in the same tree or in trees close to one another. The trees selected are generally dead and very rotten and when a live tree is chosen the branch in which the hole is situated is invariably greatly decayed. Year after year the birds keep to the same nesting-site though they may not use the same hollow. The entrance is usually a natural one but is often enlarged and finished off by the birds themselves, who employ both feet and bill in tearing away the soft, rotten wood. They will breed in

heavy evergreen forest, thin deciduous forest, mixed bamboo and tree jungle or even in the open but, undoubtedly, their favourite site is a dead tree in deserted cultivation surrounded by forest. The eggs number two or three, generally the latter, and cannot be distinguished from those of the preceding bird. Thirty eggs average 36·2 × 25·6 mm. : maxima **38·4** × 25·9 and 34·8 × **26·5** mm.; minima **33·5** × 26·0 and 35·9 × **24·3** mm.

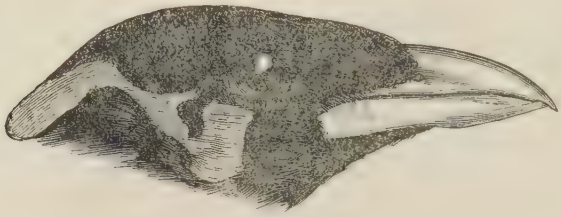


Fig. 5.—Head of *E. j. intermedia.*

**Habits.** This Grackle is a very common bird throughout the Himalayan Terai and hills of Assam and Burma and where food is plentiful often collects in some numbers. It has a fine musical whistle and a great variety of other notes, pleasant and the reverse. It is perhaps the best mimic among the birds of the genus and is a favourite cage-bird with natives. In captivity it is fed principally on boiled rice and bananas but eats both meat and insects when offered. It is apparently a long-lived bird, one which I saw in a cage having been with its owner twenty-four years.

## (965) Eulabes javana andamanensis.

THE ANDAMAN GRACKLE.

*Eulabes andamanensis* Tytler, Beavan, Ibis, 1867, p. 331 (Andamans).
*Eulabes intermedia.* Blanf. & Oates, i, p. 511 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *E. j. intermedia*, but with a larger patch of white on the wings and with a longer, less slender bill. Two specimens in the British Museum from the South Andamans have very strong, coarse bills and are much nearer to *E. j. javana*. The eye- and cheek-patches are generally joined together, sometimes very broadly so but in a few they are divided.

**Colours of soft parts** as in *E. j. intermedia*.

**Measurements.** Wing 165 to 175 mm.; tail 83 to 88 mm.; tarsus about 35 mm.; culmen 26 to 27 mm., in depth between 12 and 15 mm., generally about 13 to 14 mm.

**Distribution.** Andamans and Nicobars, possibly excluding the South Andamans.

**Nidification.** Davison found this Grackle breeding in April and

May, making the usual rough nests in holes in trees. He did not take any eggs.

**Habits.** Those of the genus.

## (966) Eulabes ptilogenys.

THE CEYLON GRACKLE.

*Gracula ptilogenys* Blyth, J. A. S. B., xv, p. 285 (1846) (Ceylon).
*Eulabes ptilogenys.* Blanf. & Oates, i, p. 513.

**Vernacular names.** *Mal-kawada, Selala heneya* (Cing.).

**Description.** Very similar to *E. j. intermedia* but with no bare skin on the sides of the head. The white patch on the wing extends to the 6th primary only.

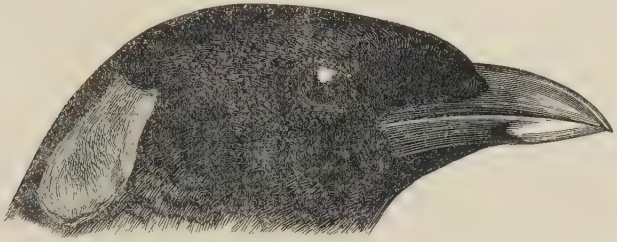


Fig. 6.—Head of *E. ptilogenys.*

**Colours of soft parts.** Iris, male, greyish white sometimes mottled with brown; females white or yellowish white; bill orange-red, the base from the nostrils black; legs and feet gamboge-yellow.

**Measurements.** Total length about 255 to 265 mm.; wing 150 to 154 mm.; tail 65 to 70 mm.; tarsus 32 to 33 mm.; culmen 23 to 24 mm.

**Distribution.** Ceylon only.

**Nidification.** Similar to that of other species of the genus. The eggs cannot be distinguished from those of *E. religiosa.* A fine series were collected by Mr. J. Stewart and his collectors during March and April. Twenty-six of these average 32·8 × 22·7 mm.: maxima **36·0** × 21·8 and 33·1 × **23·5** mm.; minima **30·9** × 23·6 and 32·3 × **21·6** mm.

**Habits.** It occurs in the well-wooded parts of the main Hill-ranges in Eastern Ceylon from about 1,500 to 6,500 feet. In the forests Westwards of the Adam's Peak range it appears to descend to sea-level. Its habits are much the same as those of *E. religiosa* but the call is rather less shrill.

## Genus LAMPROCORAX.

*Lamprocorax* Bonaparte, Comp. Rend., xxxvii, p. 830 (1853).

Type, *Lamprocorax grandis* Salvadori.

The genus *Lamprocorax* contains certain species of birds known as Glossy Starlings or Stares, more closely allied structurally to

*Eulabes* than to the true Starlings but in habits and superficial resemblance very like birds of the genus *Sturnia*. They range from North-East India, through Burma, the Malay States and Islands to Australia.

The plumage is intensely glossy, the bill fairly stout and gently curved; the nostrils are small and round; the wing long and pointed; the tail of moderate length and well graduated; the tarsus and feet strong.

Some modern ornithologists unite *Lamprocorax* with *Aplonis*, from which, however, it is well differentiated in several characters. In *Aplonis* the bill is deeper and more curved, the tail is but very slightly rounded and the wing is shorter and less pointed.

## Lamprocorax panayensis.

*Calornis panayensis* Gray, Gen. B. ii, p. 327.

Type-locality: Labuan.

*Key to Subspecies.*

A. Smaller; wing under 103 mm. ..... *L. p. strigatus*, p. 22.
B. Larger; wing over 103 mm.
*a*. Plumage very dark and less glossy .... *L. p. tytleri*, p. 23.
*b*. Plumage not so deep and very glossy .. *L. p. affinis*, p. 24.

## (967) Lamprocorax panayensis strigatus.

THE GLOSSY STARE.

*Turdus strigatus* Horsf., Trans. Linn. Soc., xiii, p. 146 (1820) (Java).
*Calornis chalybeius*. Blanf. & Oates, i, p. 514.

**Vernacular names.** None recorded.

Fig. 7.—Head of *L. p. strigatus*.

**Description.** Whole plumage black, glossed everywhere, except on the lores and base of upper mandible, with brilliant green.

**Colours of soft parts.** Iris vermilion-red to deep, bright crimson; bill black; legs and feet black.

**Measurements.** Total length about 230 to 240 mm.; wing 92 to 103 mm.; tail 63 to 65 mm.; tarsus 22 to 23 mm.; culmen 17 to 18 mm.

**Young birds** are brown above faintly glossed with green, the gloss increasing with age; lower plumage dull greyish or buffy white streaked with greenish brown, narrowly on the chin, throat and fore neck, broadly elsewhere.

**Nestling.** Above brown faintly streaked with black; below dull white streaked throughout with brown.

**Non-adult bird.** Iris yellowish white, becoming more and more suffused with red as the age advances; the legs and feet are brownish or bluish black.

**Distribution.** Tenasserim South to Sumatra, Java and Borneo. Birds from the Northern areas are bigger than those from the South, the wing seldom falling as low as 100 mm., whereas the Southernmost are nearly always below 100 mm. There is, however, much overlapping and I can see no other differences between the two. If the Northern bird were kept separate it would bear the name *irwini* (Hume, Str. Feath., i, p. 481, 1873).

**Nidification.** The breeding-season of this Stare seems to be April and May throughout its range. They nest sometimes in holes in trees but Hopwood found them breeding in colonies in Mergui, building their nests in toddy palms at the junction of the leaves with the trunk. Mackenzie also found them breeding, some 15 or 20 pairs, on a toddy palm, covered with a fern, the nests being placed between the roots of the ferns and the stem of the palm. They were also breeding in the roof of the Court-house in Mergui and in bridges and other buildings. The nest is a very rough cup-shaped affair of roots, grass, leaves, etc.

The eggs, generally three in number, are miniatures of those of *Eulabes* but only measure about 25·5 × 18·5 mm.

**Habits.** This bird is a typical Starling in all its ways except that it is principally frugivorous in its diet. It is found both in the Plains and lower hills up to some 4,000 feet but does not seem to breed in the hills above 1,000 or 1,500 feet. It is very gregarious and associates in large flocks, often with other Starlings, mostly feeding high up in tall trees unless tempted by abundant food to the lower trees and bushes. It frequents both forests and well-wooded open country.

## (968) Lamprocorax panayensis tytleri.

THE ANDAMAN GLOSSY STARE.

*Calornis tytleri* Hume, Str. Feath., 1873, p. 480 and 1874, p. 253 (Andamans).
*Calornis chalybeius.* Blanf. & Oates, i, p. 514 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *L. p. strigatus* but bigger and with a darker, duller gloss.

**Colours of soft parts.** Iris white, pale pink, brown, red-brown or deep orange (*Hume*).

**Measurements.** Wing 112 to 120 mm.

**Young** like those of the preceding race.

**Distribution.** Andamans and Nicobars.

**Nidification.** Similar to that of *L. p. strigatus* though the eggs

differ considerably from those of that bird. The ground-colour is very pale, one clutch taken by Mr. P. Wickham being practically white. The markings consist of much smaller spots and specks of reddish brown, sparse everywhere, but less so at the larger end. They measure about 26·0 × 19·0 mm. According to Davison they nest principally in holes in Coco-nut Palms. The breeding-season is in March and April.

**Habits.** Those of the Glossy Stare. This bird is resident and breeds in both the Andamans and Nicobars, though it is more common in the latter islands.

### (969) Lamprocorax panayensis affinis.

HODGSON'S GLOSSY STARE.

*Calornis affinis* A. Hay, Blyth, J. A. S. B., xv, pp. 36, 369 (1846) (Tipperah).
*Calornis chalybeius.* Blanf. & Oates, ii, p. 514 (part).

**Vernacular names.** *Dao-gogoui*, *Dao-maina-gajeba* (Cachari).

**Description.** Similar to *L. p. strigatus* but much bigger.

**Colours of soft parts** as in the preceding forms.

**Measurements.** Wing 108 to 117 mm.

**Distribution.** Eastern Bengal, Assam, Arakan, Chin and Kachin Hills, Shan States, Northern Siam.

**Nidification** and **Habits** similar to those of *L. p. strigatus.*

## Genus SAROGLOSSA.

*Saroglossa* Hodgson, J. A. S. B., xiii, p. 367 (1844).

Type, *Saroglossa spiloptera.*

This genus, generally spelt *Psaroglossa*, was originally spelt without the *P*, and Blyth's *Psaroglossa* (*nom. emend.* Cat. B. Mus. As. Society, p. 109, 1849) cannot be accepted.

This genus is rather aberrant in some respects, having even larger rictal bristles than is usual, whilst the sexes are different in coloration. In all other respects, as in habits and nidification, it is essentially a Starling and must be placed in this family, to which it is closer than it is to the *Sturnidæ.*

The bill is slender and gently curved, the nostrils are small and slender and the rictal bristles short though strong; the feathers of the crown are somewhat lanceolate but short; the wing is long and pointed and the first primary very small; the tail is short and square; the tongue is less fleshy than in *Eulabes.*

### Saroglossa spiloptera.

*Key to Subspecies.*

A. Paler and less richly coloured ..... *S. s. spiloptera*, p. 25.
B. Darker and more richly coloured ..... *S. s. assamensis* p. 26.

## (970) Saroglossa spiloptera spiloptera.

THE SPOTTED-WINGED STARE.

*Lamprotornis spilopterus* Vigors, P. Z. S., 1831, p. 35 (Himalayas, Simla–Almora).
*Psaraglossa spiloptera.* Blanf. & Oates, i, p. 249.

**Vernacular names.** *Puli* (at Mussoorie).

**Description.—Adult male.** Forehead, crown, nape and upper back grey, each feather edged with black; mantle grey, the feathers edged brown; rump brown; upper tail-coverts rufous-brown; tail brown tinged with rufous at the base; wing-coverts dark brown edged with grey; primary-coverts, primaries and outer secondaries black edged with glossy greenish blue; inner secondaries brown; lores, cheeks and ear-coverts black; a white patch at the base of the primaries; chin and throat deep chestnut-rufous; whole lower plumage pale rufous, deepest on lower breast and flanks, palest generally on breast and almost white on the abdomen.

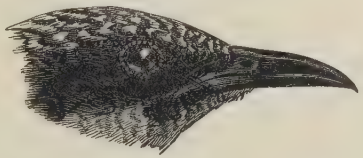


Fig. 8.—Head of *S. s. spiloptera.*

**Colours of soft parts.** Iris white; bill black, horny-red at the base, edges of both mandibles yellowish next the mouth; legs, feet and claws black.

**Measurements.** Total length about 240 mm.; wing 101 to 110 mm.; tail 53 to 59 mm.; tarsus 21 to 22 mm.; culmen 17 to 18 mm.

**Female.** Whole upper plumage brown, the feathers with pale centres, conspicuous on the crown, less so on the scapulars and back and obsolete elsewhere; lesser and median wing-coverts brown edged with grey; quills dark brown with a white patch as in the male; sides of the head brown; lower plumage grey-brown, the feathers edged with white, especially on the chin and throat; abdomen, vent and under tail-coverts greyish white, unmarked.

**Young** like the adult female but with the markings bolder and giving a more streaky appearance.

**Distribution.** Himalayas from Dharmsala to Garhwal and, possibly, Western Nepal; in Winter to the Plains of N.W. India as far as Fatehgarh.

**Nidification.** This Stare breeds freely in the lower, outer Himalayan ranges between 3,000 and 5,500 feet and is common below Naini Tal and Mussoorie at this elevation. The eggs are laid during the end of April, May and the first few days of June

in holes in trees. There is no real nest but a few leaves, scraps of straw, grass, etc. form a bed for the eggs. According to Whymper this Stare has a curious habit of carrying small green leaves into the nest-hole after the eggs have been laid and under which they are often completely concealed. The eggs number three or four and are pale blue spotted and blotched with reddish and purplish brown. Twenty-five eggs average 25·4 × 18·0 mm.: maxima **28·5 × 19·0** mm.; minima **24·0** × 18·7 and 24·3 × **17·0** mm.

**Habits.** The habits of this bird are exactly like those of *Sturnia*, a genus which *Saroglossa* very closely resembles also in shape and action. It collects in flocks of half-a-dozen to forty or more and haunts the tops of tall trees, especially such as the *Bombax* when it is in flower, and feeds both on berries, small fruit and insects. It is often found in company with *Eulabes*, *Sturnia* and other birds keeping up a constant chattering twitter all the time, a soft musical whistle being uttered from time to time, possibly a call-note from one bird to another. They are extremely restless and keep ever on the move, occasionally flying off in a flock all together, sailing round a few times and then, finally, returning to the same tree and continuing their hunt for food.

## (971) Saroglossa spiloptera assamensis.

The Assam Spotted-winged Stare.

*Psaraglossa spiloptera assamensis* Stuart Baker, Bull. B. O. C., xlv, p. 14, 1924 (Khasia Hills).
*Psaraglossa spiloptera.* Blanf. & Oates, i, p. 249 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *S. s. spiloptera* but deeper and more richly coloured both above and below in both sexes. In the male the grey centres to the feathers of the back are bolder and the margins blacker and less brown.

**Colours of soft parts** and **Measurements** as in the last bird.

**Distribution.** Eastern Nepal, Sikkim, Bhutan, Assam, the Burmese Hills to Tenasserim, Shan States, Yunnan, Annam, Cochin China and South-West China.

**Nidification.** An egg taken by myself in N. Cachar was laid in a hole in a tree at an elevation of about 2,500 ft. There was no nest beyond a little rubbish and the hole was high up in a rotten branch of a *Bombax malabarica*. It is like that of the preceding bird in coloration but measures 28·0 × 19·0 mm. and is probably an unusually large egg. Young were found hatched in early May and flying about at the end of that month. For nesting purposes the birds seemed to select very unclimbable trees or trees in very inaccessible positions overhanging cliffs and steep hillsides.

**Habits.** Those of the preceding bird. It haunts light forest but preferably open, well-wooded country not far from heavier forest.

Fig. 9.—*Acridotheres t. tristis.*

## Family STURNIDÆ.

This family is very closely allied to the *Eulabetidæ*, differing chiefly in having no rictal bristles and in having the plumage of the young in most cases more obviously streaked.

It contains a large number of genera and species, of which some are migratory and visit India only in Winter; others are locally migratory and others, again, sedentary. As far as Oates's genera are concerned I see no reason to add others or to eliminate any of those he accepts. In some cases, however, further material has shown many of his species to be geographical races or subspecies only and additional subspecies also have had to be accepted as sufficiently distinct.

*Key to Genera.*

A. Wing pointed, secondaries falling short of tip by more than length of tarsus.
  *a*. Crest very long; much longer than tarsus ..... PASTOR, p. 28.

*b*. Crest moderate; never as long as tarsus.
*a'*. Feathers of forehead short, lying flat and directed backwards; entire head feathered.
*a''*. Bill stout, as long as head, broad and bluntly tipped.
$a^3$. Plumage glossy and speckled .. STURNUS, p. 30.
$b^3$. Plumage neither glossy nor speckled ..... SPODIOPSAR, p. 36.
*b''*. Bill slender, shorter than head and sharply pointed.
$c^3$. Middle rectrices longer than the outermost ..... STURNIA, p. 37.
$d^3$. Middle rectrices shorter than the outermost..... AGROPSAR, p. 43.
*b'*. Feathers of forehead lengthened, projected forwards; region of eye naked ..... AMPELICEPS, p. 44.
B. Wing blunt; secondaries falling short of tip by less than length of tarsus.
*c*. Crest longer than tarsus ..... TEMENUCHUS, p. 47.
*d*. Crest shorter than tarsus.
*c'*. Sides of head partly bare.
*c''*. Frontal feathers short and inclined backwards.
$e^3$. A patch behind the eye only, bare ..... STURNORNIS, p. 46.
$f^3$. A patch both behind and below the eye bare ..... GRACUPICA, p. 49.
*d''*. Frontal feathers lengthened and erect ..... ACRIDOTHERES, p. 52.
*d'*. No bare skin on sides of head.
*e''*. Bill shorter than head, culmen curved; frontal feathers long, curly and erect ..... ÆTHIOPSAR, p. 56.
*f''*. Bill as long as head, culmen straight; frontal feathers short and inclined backwards ..... STURNOPASTOR, p. 61.

## Genus **PASTOR.**

*Pastor* Temm., Man. d'Orn., i, p. 83 (1815).

Type, *Pastor roseus.*

In the genus *Pastor* the bill is slender, curved and rather shorter than the head; the nasal membrane is covered with feathers; the wing is long and pointed; the tail short and square; the sexes differ little in plumage and both have a full long crest. In Winter the black feathers of the head and crest have buff tips which are lost by abrasion in the Spring.

There is only one species which is found over the geater part of Eastern Europe, Western and Central Asia.

## (972) Pastor roseus.

THE ROSY PASTOR or ROSE-COLOURED STARLING.

*Turdus roseus* Linn., Syst. Nat., 10th ed. i, p. 170 (1758) (Lapland).
*Pastor roseus*. Blanf. & Oates, i, p. 518.

**Vernacular names.** *Golabi maina* (Hind. in the North); *Tilyer* (Hind. in the South); *Pariki-pitta*, *Palisa* (Tel.); *Sura kuravi* (Tam.); *Bya* (Sind); *Lal-Maina* (West Bengal).

**Description.—Adult male in Summer.** Whole head and nape, upper breast, wings and tail black, the head portions glossed with purple, the rest with deep green; under wing-coverts and axillaries, flanks next the vent, thighs and under tail-coverts black edged with pink; remainder of plumage rose-colour.

**Colours of soft parts.** Iris dark brown; bill rosy pink, darker and browner on the culmen; legs and feet tan, yellowish or pale horn-brown.

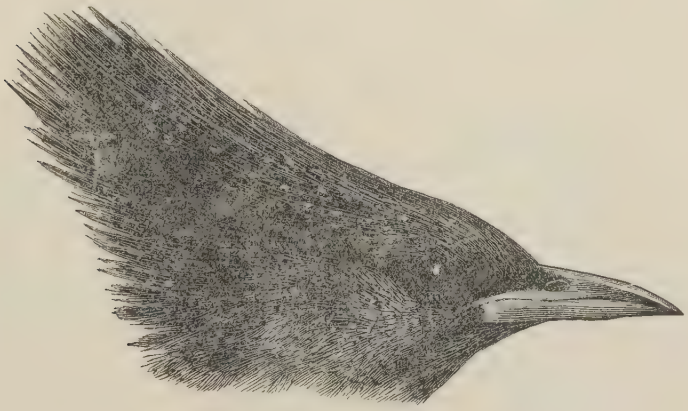


Fig. 10.—Head of *P. roseus*.

**Measurements.** Total length about 220 to 230 mm.; wing 124 to 135 mm.; tail 65 to 75 mm.; culmen 21 to 23 mm.; tarsus 29 to 34 mm.

**Male in Winter** has the black feathers of the head and crest tipped with buff.

**Female** similar to the male but paler and duller and with the rose-colour above nearly always mixed with greyish patches.

**Young birds** acquire a partial adult plumage the first Autumn, the wings and tail becoming black and the first indications of rose-colour appearing.

**Nestling.** Upper plumage sandy-brown, the feathers of the crown centred darker; wings and tail brown with paler edges; lower plumage paler sandy-brown, albescent on the lower breast

and abdomen, upper breast and fore neck with dark central markings.

**Distribution.** Breeding in South-East Europe, West and Central Asia to Turkestan. In Winter it occurs in great numbers all over North-West India and in smaller numbers to South India, having been obtained as far South as Ceylon and as far East as Manbhum and Bihar. Stragglers have occurred yet farther East. I obtained a specimen in Assam, Col. Tytler obtained one specimen in the Andamans, whilst later, 1905, Osmaston twice saw flocks and shot three specimens in those islands.

**Nidification.** This handsome Starling breeds from the end of May to early July, placing its nest in almost any kind of convenient hole or shelf in building, tree or bank, often, according to Dresser, on the ground quite unconcealed. The nest is made principally of grass but any kind of material, feathers, straw, leaves, rags, etc. may be mixed with this. The eggs number from three to five, rarely six and are bright, pale, glossy, skim-milk blue. Average 27·97 × 20·91 mm.: maxima **30·8 × 22·0** mm.; minima **26·6** × 21·3 and 26·6 × **19·9** mm.

**Habits.** In its habits this bird is a typical Starling though more gregarious than most, even breeding in large communities. It arrives in the Punjab and North-Western Frontier Provinces in vast numbers among the earliest migrants, many appearing in the end of July. By October most birds have passed on to Southern and Eastern India and during December, January, February there are few birds in the North-West. In April and May the return migration takes place and by the middle of the latter month all have gone North. They feed on both insects and grain and their numbers are so great that they take a very serious toll of the ripe grain on their migration routes. When there are locust invasions, however, the "Jowari-Birds" kill and eat an incredible number and are one of the most important factors in dealing with them. The song is "a jumble of discordant, grating noises with some melodious warbles intermixed" (*Ticehurst*).

## Genus **STURNUS.**

*Sturnus* Linn., Syst. Nat., 10th ed. i, p. 85 (1758).

Type, *Sturnus vulgaris.*

The genus *Sturnus* contains the true Starlings, which have a very wide distribution and are familiar and well known birds wherever they occur. They may be recognized by their bright plumage, which is glossed with red, purple and blue and by the hackled feathers of the head, throat and breast. The genus *Sturnus* has a Winter and Summer plumage, the change being caused by the abrasion of the buff tips to the feathers; the colour of the bill also changes according to the season. The young are boldly streaked below and the sexes are alike.

In this genus the bill is as long as the head, broad, blunt and straight. The nostrils are covered by a membrane, which is feathered on the posterior half; the wing is very pointed and the tail short and square.

## Sturnus vulgaris.

*Sturnus vulgaris* Linn., Syst. Nat., 10th ed. i, p. 167 (1758).

Type-locality: Sweden.

*Key to Subspecies.*

| | |
|---|---|
| A. Wing about 110 mm. (108 to 115 mm.) . | *S. v. minor*, p. 33. |
| B. Wing about 120 mm. (115 to 123 mm.) . | *S. v. humii*, p. 31. |
| C. Wing about 130 mm. (122 to 135 mm.). | |
| *a*. Head bronze-green ..... | *S. v. porphyronotus*, p. 32. |
| *b*. Head purple. | |
| *a'*. Abdomen purple-blue, breast green. | |
| *a''*. Upper plumage green ..... | *S. v. poltaratzskii*, p. 34. |
| *b''*. Upper plumage very deep green . | *S. v. nobilior*, p. 34. |
| *b'*. Abdomen purple, breast purple. | |
| *c''*. Sides and flanks purple ..... | *S. v. dresseri*, p. 35. |
| *d''*. Sides and flanks bronzy ..... | *S. v. dzungaricus*, p. 35. |

The above key, although it may help to discriminate between the various races, cannot be considered altogether satisfactory, as there is too much overlapping. Nor can any diagnosis of the Starlings be considered satisfactory until large series of *actually breeding* birds have been obtained from the various breeding-areas *off their nests*. Winter and migrating specimens are of no use for this purpose. It may be that some of the very numerous forms now admitted as subspecies will have to be suppressed, though, on the other hand, it may even be possible that others may be discovered.

## (973) Sturnus vulgaris humii.

THE HIMALAYAN STARLING.

*Sturnus humii* Brooks, Str. Feath., viii, p. 207 (1873) (Kashmir) (Description, Hume, Ibis, 1871, p. 410); Blanf. & Oates, i, p. 520.

**Vernacular names.** *Tilgiri* (Kashmir).

**Description.—Summer.** Whole plumage black with various glosses, generally with a few fulvous specks on the posterior flanks and narrow fulvous margins to the primaries; inner portions of primaries and secondaries brown; tail purple-grey with black edges.

*Gloss.* Head deep blue or green-blue; throat, neck, upper breast and upper back copper-red; lower back, rump, scapulars, wings and abdomen greenish.

**Colours of soft parts.** Iris brown in the male, white in the female; bill yellow; legs and feet reddish brown to tan-brown.

**Measurements.** Total length about 190 to 200 mm.; wing 115

to 123 mm.; tail 50 to 60 mm.; culmen 24 to 26 mm.; tarsus about 29 mm.

**Winter.** Upper plumage and wing-coverts with small triangular fulvous tips, generally obsolete or absent on the head; lower plumage black with large white terminal bars to the feathers of the breast, flanks and abdomen.

**Young birds** like the adult but retaining the large white spots of the nestling's lower plumage and, to a less extent, the buff spots on the upper plumage.

**Nestling.** Pale brown, the feathers of the lower plumage streaked with darker brown and the throat and chin very pale.

**Distribution.** Breeding in the Himalayas East to Nepal and Garhwal and West to Afghanistan. In Winter it is found in the Plains of the North-West, Sind and Northern India East to Dinapore and Bihar.

**Nidification.** The Kashmir Starling breeds from the end of April to early June, between 5,000 and 7,000 feet, making a rough untidy nest of grass, straw, leaves, etc. well lined with feathers, placed in holes of trees, buildings or even in banks. General Betham also discovered it breeding in holes excavated in the masses of debris in the reed-beds in the Kashmir Lakes. The eggs number four to seven and are a very pale skim-milk blue, occasionally almost white. They are highly glossed and in shape ovals well pointed at the smaller end. One hundred eggs average 29·7 × 20·5 mm.: maxima **30·5 × 21·4** mm.; minima **27·0** × 20·3 mm. and 28·0 × **19·2** mm.

**Habits.** This Starling is quite typical of the genus; very gregarious, cheerful, impudent and noisy though, perhaps, less of a town bird and more an inhabitant of orchards, gardens, open but well-wooded country than is its English relation. It has a considerable repertoire of notes, mostly unpleasant, although the bird itself is under the impression that it is quite the finest songster to be found in Kashmir. In the breeding-season the male sits on any exposed position and with drooping, shivering wings and depressed tail gives vent to discordant whistles, shrieks and ungreased cart-wheel notes with which to woo its most indifferent mate. These Starlings do an immense amount of good in the destruction of their insect food, largely grasshoppers; often, however, they do an even greater amount of harm in pilfering fruit and ripe grain.

## (974) Sturnus vulgaris porphyronotus.

THE CENTRAL ASIAN STARLING.

*Sturnus porphyronotus* Sharpe, Ibis, 1888, p. 438 (Yarkand); Blanf. & Oates, i, p. 521.

**Vernacular names.** None recorded.

**Description.** *Gloss.* Head, throat and neck deep bronze-green;

upper plumage and scapulars all purple-red; breast violet-purple; abdomen bronze-copper.

This race seems to be generally and profusely spotted on the head and the spots on the upper plumage are almost white.

**Colours of soft parts.** Iris brown; bill brown in Winter, yellow in Summer; legs and feet red-brown.

**Measurements.** Wing 124 to 132 mm.

**Distribution.** Breeding from Ferghana and Yarkand in Turkestan to the Tian Schan; in Winter, South Afghanistan, Baluchistan and N.W. India. Ticehurst records two specimens from Sind.

**Nidification.** Breeds on the Tian Schan from April to June, making a nest similar to that of the Common Starling but more often placing it in holes in tree-trunks. The few eggs I have seen (24) average 31·2×21·1 mm.: maxima **32·7**×21·5 and 31·8×**21·6** mm.; minima **28·0**×20·7 and 31·0×**20·6** mm.

**Habits** similar to those of the other Starlings.

## (975) Sturnus vulgaris minor.

THE SMALL INDIAN STARLING.

*Sturnus minor* Hume, Str. Feath., 1873, p. 207 (Larkhana, Sind); Blanf. & Oates, i, p. 522.

**Vernacular names.** *Choto Kharo Nhakeo* (Sind).

**Description.** *Gloss.* Head, throat and upper breast green; remainder of upper plumage purple; wings bronze-green; lower breast purple, abdomen bronze-green.

**Colours of soft parts.** "Iris in male brown, in female whitish; bill yellow, dusky at the tip; legs and feet claret-brown" (*Doig*). In Winter the bill is dusky.

**Measurements.** Wing 108 to 115 mm. "Up to 120 mm." (*Ticehurst*).

**Distribution.** A resident race in Sind. Once found at Etawah by Brooks in 1872.

**Nidification.** The Small Indian Starling breeds in Sind from the middle of March to the middle of May, laying their eggs in holes in "*Kandi*" trees (*Prosopis spicigera*). They make a nest pad of grass and feathers and lay from three to five eggs, generally four, which are of the usual type but very small. According to Oates they vary from 25·4 to 30·0 mm. in length and from 18·0 to 20·8 mm. in breadth. The smallest egg in my collection is 25·0×19·0 mm.

**Habits.** This little Starling is very local in its habitat, apparently being only found within the close vicinity of water, either rivers, canals or swamps and leaving the latter in specially dry seasons. According to Scrope Doig "the total lengths of their breeding-ground in any district must be close on 200 miles, but entirely confined to the banks of the rivers. If you looked four miles

from the river, one side or the other, you would not see one." Their flight, food and voice are all similar to those of the other Starlings.

## (976) Sturnus vulgaris poltaratzskii.

FINSCH'S STARLING.

*Sturnus poltaratzskii* Finsch, P. Z. S., 1878, p. 713 (Lake Marka-Kul, Altai); Blanford & Oates, i, p. 523.
*Sturnus menzbieri.* Blanf. & Oates, i, p. 522.

**Vernacular names.** *Telia-maina* (Hind.); *Tilora* (at Ghazipur); *Nakshi-telia* (at Agra); *Tilgiri* (Kashmir); *Kharo Nhakeo* (Sind)

**Description.** *Gloss.* Head and fore neck purple, greenish on the ear-coverts; whole upper plumage green, scapulars, wing-coverts and, rarely, the sides of the rump with some blue; abdomen purple-blue.

**Colours of soft parts.** Iris dark brown; bill yellow in Summer, dusky at the base; horn-brown in Winter; legs and feet reddish brown.

**Measurements.** Wing 122 to 133 mm.

**Distribution.** Siberia and Central Asia. In Winter a visitor to India from Sind to Eastern Assam and as far South as the Deccan and Madras. There is one quite typical specimen from Kandahar in the British Museum collection.

**Nidification.** Eggs sent to me from the Scully collection found "near Lake Baikal" measure about 29·5 × 21·7 mm. They were taken on the 4th and 17th May.

**Habits** similar to those of other Starlings. This is a common Winter visitor to India, arriving in early October and leaving before the end of March. They frequent well-watered areas and keep much, especially in Sind, to the vicinity of rivers and canals.

## (977) Sturnus vulgaris nobilior.

HUME'S STARLING.

*Sturnus nobilior* Hume, Str. Feath., 1879, p. 175 (Kandahar).
*Sturnus poltaratzskii.* Blanf. & Oates, i, p. 523 (part).

**Vernacular names.** *Tilgiri* (Kashmir).

**Description.** *Gloss.* Head, throat and fore neck copper-purple; upper plumage deep green, bluer on the rump and scapulars; tips of longest scapulars, coverts and secondaries purple; breast green; abdomen purple. Altogether a much darker bird than the preceding, with very dark axillaries.

**Colours of soft parts** as in *S. v. poltaratzskii.* "The iris of the female has a pale outer ring as with *dresseri*, *poltaratzskii* and *porphyronotus*" (*Ticehurst*).

**Measurements.** Wing 124 to 135 mm.

**Distribution.** Afghanistan and Persia and there is one specimen from Merv in the British Museum. A common Winter visitor to North-West India and Sind.

**Nidification.** Nothing recorded. A clutch of eggs sent me from Persia taken on the 20th May measure 30·5 × 20·7 mm.

**Habits** similar to those of other Starlings.

## (978) Sturnus vulgaris dresseri.

DRESSER'S STARLING.

*Sturnus purpurascens dresseri* Buturlin, Orn. Jahrb., 1904, pp. 208–9 (Askabad).

**Vernacular names.** None recorded.

**Description.** *Gloss.* Head, neck and whole lower parts purple; upper parts green, more blue on the lower back, rump and upper tail-coverts and often with a certain amount of purple sheen also; wing-coverts and inner secondaries purple.

**Colours of soft parts** as in *S. v. poltaratzskii*.

**Measurements.** Wing 122 to 131 mm.

**Distribution.** Askabad and Merv to Ferghana and, according to Buturlin, as far East as the Kara-tau. The only specimen from India in the British Museum collection is one from Sind; the others so named appear to me to be all *nobilior*.

**Nidification.** Nothing recorded.

**Habits** do not differ from those of other Starlings. In Winter, when the extra-limital Starlings visit India, two or more races may be found in the same flock. Thus Ticehurst obtained specimens of *nobilior* and *poltaratzskii* with one shot and also found Dresser's Starling associating with these two. This writer also points out that the plum-red shoulders of *nobilior* are a noticeable character in life.

## (979) Sturnus vulgaris dzungaricus.

BUTURLIN'S STARLING.

*Sturnus dzungaricus* Buturlin, Orn. Jahrb., 1904, p. 208 (Uranga in Dzungaria).

**Vernacular names.** None recorded.

**Description.** "Head and neck bronze-purple, the back violet-green, rump violet (held away from the light the back is green, the belt (*sic*) blue), shoulders bluish purple, wings purple-bronze, underside laterally with bronzy gloss" (Hartert, Nov. Zool. XXV, p. 336, 1918).

**Measurements.** Wing 127 to 133 mm.

**Distribution.** Dzungaria, where Buturlin believes it to breed and in winter going South. Four birds from India taken at

Lucknow, Meerut, Rawal-Pindi and Murdan agree better with the above description than with that of any other race. They are, however, very close to *dresseri*.

**Nidification and Habits.** Nothing recorded.

## Genus **SPODIOPSAR**.

*Spodiopsar* Sharpe, Ibis, 1889, p. 580.

Type, *Sturnus cineraceus* Temm.

The genus *Spodiopsar* differs from *Sturnus* in having the covering membrane of the nostril entirely plumed and in having plumage without gloss. The culmen of the bill is slightly curved and not straight as in *Sturnus*. The sexes are alike and the Summer and Winter plumages do not vary.

There is only one species which enters our limits on migration.

### (980) **Spodiopsar cineraceus.**

THE GREY STARLING.

*Sturnus cineraceus* Temm., Pl. Col., 556 (1832) (Japan).
*Spodiopsar cineraceus.* Blanf. & Oates, i, p. 524.

**Vernacular names.** None recorded.

**Description.—Adult male.** Crown, nape and sides of head black; forehead, lores, chin and ear-coverts white more or less streaked with black; the white often encroaches in streaks on to the crown, throat and sides of head, a few individuals being almost all white on the throat; upper plumage and wing-coverts ashy-brown with a broad white bar across the rump; primaries dark brown narrowly margined with white on the outer webs; the outer secondaries more broadly margined, inner secondaries like the back but with bronze reflections and narrow terminal dark margins; chin and throat dark ashy-brown with faint streaks of paler brown; breast and flanks dark ashy, abdomen and under tail-coverts creamy-white; axillaries white with brown on the inner webs; under wing-coverts white.

**Colours of soft parts.** Iris composed of two rings of hazel and white; bill orange with a wide black tip; legs and feet yellow or yellowish brown.

**Measurements.** Total length about 240 mm.; wing 122 to 132 mm.; tail 61 to 65 mm.; culmen 23 to 25 mm.; tarsus 30 to 31 mm.

**Female.** Similar to the male but never seems to assume the very dark throat, breast and flanks, these parts being always a paler ashy-grey.

**Young male** like the female but with a still lighter crown and nape.

**Nestling.** Whole plumage light russet-brown, albescent on the

abdomen and under tail-coverts; ear-coverts and chin whitish, the former with a few black streaks.

**Distribution.** Eastern Siberia to Japan; breeding also in North China and Mongolia. In Winter South to South China, Hainan and Formosa and once into Burmah.

**Nidification.** Very similar to that of birds of the genus *Sturnus*, They make a very rough nest of grass and feathers placed in a hole of a tree at any height from the ground between 10 and 30 feet. Owston informed me that it also sometimes bred in deserted buildings. The eggs vary from three to seven and are like rather deep-coloured eggs of the Common Starling. They vary in size between 25·8 × 19·5 mm. and 30·0 × 22·0 mm. The breeding-season is from the end of April to early June.

**Habits.** This Starling is said to be gregarious and even to breed in scattered communities. It is a bird of open country in which there are suitable trees and is rather shy of man's haunts. Its flight is like that of the true Starlings and its diet also similar.

## Genus **STURNIA**.

*Sturnia* Less., Compl. Buff., ix, Ois., p. 53 (1837).

Type, *Sturnia sinensis=turdiformis* Wagler.

The genus *Sturnia* contains two Indian species, of which one is separable into several geographical races.

In *Sturnia* the sexes are alike and the young are almost uniform brown until the first Autumn. The bill is shorter than the head, slender, with the culmen gently curved; the nasal membrane is plumed; the tail is wedge-shaped, the middle pair of tail-feathers being a little the longest.

*Key to Species.*

A. Upper wing-coverts and scapulars rosy-white contrasting with back ..... *S. turdiformis*, p. 37.
B. Upper wing-coverts and scapulars same colour as back ..... *S. malabarica*, p. 38.

## (981) **Sturnia turdiformis.**

THE CHINESE MYNA.

*Pastor turdiformis* Wagler, Syst. Av., *Pastor* sp. 15 (1827) (China).
*Sturnia sinensis.* Blanf. & Oates, i, p. 526.

**Vernacular names.** None recorded.

**Description.** Forehead, crown, chin, lores and round the eye rosy ferruginous, deepest and purest on the lores; rump, upper tail-coverts, flanks, thighs and under tail-coverts rosy-ferruginous; neck and back ashy-grey; scapulars and wing-coverts white at the bases grading into rosy; quills black with a metallic green gloss on the visible portions of the closed wing; tail black, broadly

tipped with ferruginous and the outermost feathers edged with the same; throat, sides of neck and breast pale grey; centre of abdomen white; axillaries and under wing-coverts very ferruginous.

**Colours of soft parts.** Iris white to bluish-white; bill slaty-grey or pale bluish-plumbeous, the mouth and base rich slaty-blue; legs and feet slaty-blue to plumbeous-grey.

**Measurements.** Total length about 225 mm.; wing 95 to 106 mm.; tail 54 to 59 mm.; culmen 18 to 19 mm.; tarsus 26 to 27 mm.

**In Winter** after the Autumn moult the rosy-ferruginous tint disappears altogether or to a great extent, the parts affected becoming grey-white or pure white, as on the flanks.

**The Young bird** has the head all grey, merely suffused with rufous; the wings and tail are dark brown; the rump, scapulars and wing-coverts are grey and the lower surface pale grey, a little deeper on the breast.

**Distribution.** Breeding in China, Formosa and Japan and extending in Winter throughout the Indo-Chinese countries and Siam to Singapore and Pegu. Hume also saw it in Manipur.

**Nidification.** In China Messrs. Vaughan and Jones found these birds breeding during May and June, placing their nests occasionally in holes in trees but more often in buildings, especially in old pagodas. The nests are large, untidy affairs of all kinds of rubbish and the birds often build in large communities, sometimes with Sparrows and other Mynas. The eggs number four or five and are pale blue-green. They average $27{\cdot}4 \times 18{\cdot}8$ mm.

**Habits.** This Starling is almost entirely a tree-feeder but occasionally also feeds on the ground. Like the rest of the genus it is gregarious, though not assembling, even during migration, in the vast multitudes affected by the Rosy Pastor. They arrive in their Winter quarters in September and leave again at the end of March, pairing before they arrive at their nesting-places.

## Sturnia malabarica.

*Key to Subspecies.*

A. Lower plumage partly or all rufous.
  *a*. Head grey or grey tinged with rufous.
    *a'*. Winglet and primary-coverts black. — *S. m. malabarica*, p. 39.
    *b'*. Winglet and primary-coverts white, or with some white markings .... — *S. m. nemoricola*, p. 42.
  *b*. Head all white ..... — *S. m. blythii*, p. 40.
B. Lower plumage all white, except under tail-coverts.
  *c*. Rump pale grey, under tail-coverts pale rufous ..... — *S. m. andamanensis*, p. 41.
  *d*. Rump rufous, under tail-coverts chestnut rufous ..... — *S. m. erythropygia*, p. 41.
  *e*. Rump pale grey, under tail-coverts chestnut rufous ..... — *S. m. katchalensis*, p. 42.

STURNIA M. MALABARICA, ¾ life size.
The Grey-headed Myna
Abnormal colouration on lower plumage.

## (982) Sturnia malabarica malabarica.

THE GREY-HEADED MYNA.

*Turdus malabaricus* Gmelin, Syst. Nat., i, p. 816 (1789) (Malabar).
*Sturnia malabaria.* Blanf. & Oates, i, p. 527.

**Vernacular names.** *Pawi* (Hind.); *Desi-pawi* (Beng.); *Pali-palisa* (Tel.); *Kat-halik* (Assam); *Maina-gophu* (Cachari).

**Description.** Forehead and feathers over the eye white, often tinged with ferruginous; whole upper plumage and wing-coverts grey tinged with rufous on the upper tail-coverts and sometimes faintly washed all over with the same; feathers of the crown and lengthened feathers of the nape and neck with pale shafts; middle pair of tail-feathers bronze-grey, the lateral deep ferruginous with blackish bases; winglet, greater coverts and primaries black, the latter tipped with grey; the grey increases in extent until the innermost secondaries are all of this colour with black shafts; sides of the head, chin, throat and upper breast lilac-grey, the chin and throat very pale and the breast-feathers pale-shafted;

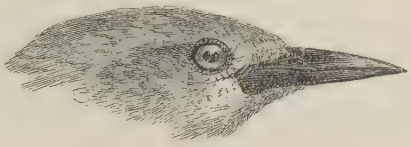


Fig. 11.—Head of *S. m. malabarica.*

remainder of lower plumage bright ferruginous, deepest on the lower tail-coverts; under wing-coverts and axillaries lilac-grey marked with black; the edge of the wing, next the bastard wing, is often whitish.

**Colours of soft parts.** Iris greyish or pearl-white to white; bill blue at the base, turning to green in the centre and to yellow at the tip; legs and feet yellowish olive to yellowish brown, the claws darker.

**Measurements.** Total length about 225 mm.; wing 99 to 102 mm.; tail 61 to 63 mm.; culmen 17 to 18 mm.; tarsus 25 to 26 mm.

**In Winter** the rufous becomes very pale and dull, sometimes almost disappearing; the upper plumage also becomes duller and browner.

**Nestling.** Above dull grey-brown, the head paler; tail all brown; below pale rufous. The bill is all yellow and the iris dull bluish-grey or bluish brown.

**Distribution.** The whole of India except the North-West portion beyond a line drawn roughly from Mt. Abu to Dehra Dun. To the South probably not breeding on the Malabar Coast South of Belgaum, though in Winter it straggles into Mysore and there

is one specimen from Travancore in the British Museum. Assam, Manipur, Chin Hills, Yunnan and Cochin China.

**Nidification.** The Grey-headed Myna breeds from April to June from the level of the Plains to about 5,000 feet, not often above 4,000 feet. It places its nest in small holes in trees at heights varying from 10 to 40 feet from the ground, often enlarging or altering a hole to suit its purpose. The nest is a very crude one, sometimes only a few leaves and a little grass, sometimes a good pad of the same material. The eggs number from three to five and are pale blue in colour. In shape they are most often rather long, pointed ovals and measure: average forty eggs 23·4 × 18·1 mm.: maxima **26·0** × 18·9 and 23·8 × **19·0** mm.; minima **21·1** × 18·0 and 22·3 × **17·0** mm.

**Habits.** This little Myna is an inhabitant of both well-wooded open country and of forest and is especially partial to huge trees left standing in patches of cultivation inside forest. When these trees, such as *Bombax malabarica*, are in flower, many of these birds resort to them to feed on the insects they attract. They hunt about amicably in company with many other species of birds and themselves associate in flocks of a dozen or twenty individuals. Every now and then the whole flock hurl themselves off the tree, fly at a great pace for a few circles round about it and then, having recovered their appetites, once more settle and feed. They keep up a constant rather musical little chatter and their notes generally are much less discordant than those of either the true Starlings or those of the genera *Acridotheres* etc.

Abnormally coloured specimens of this species seem to be very common and I have seen quite a number coloured as in the plate here given.

## (983) Sturnia malabarica blythii.

BLYTH'S MYNA.

*Pastor blythii* Jerdon, Madr. Journ. Lit. Sci., xiii, p. 133 (1844) (Malabar).
*Sturnia blythii.* Blanf. & Oates, i, p. 526.

**Vernacular names.** *Pali palisa* (Tel.).

**Description.** Differs from *S. m. malabarica* in having the whole head, neck and breast white; the grey of the upper parts is paler and there is little or no rufous tinge to the rump; the flanks and abdomen are paler rufous; the axillaries and under wing-coverts are whiter and the white shoulder wing-patch is generally more conspicuous.

**Colours of soft parts** as in the preceding bird.

**Measurements** about the same as in the preceding race. Wing 96 to 106 mm.

**Distribution.** Breeding on the Malabar Coast and Travancore South of Belgaum. Belgaum seems to be the meeting-ground of

the two races when breeding and many specimens from that district are intermediate between the two, whilst some individuals are much nearer one than the other. Breeding birds from the Wynaad, Nilgiris and Palnis all appear to be of this race. Its Eastern limit appears to be Manjarabad in Mysore.

**Nidification.** Similar to that of the preceding bird. The eggs cannot be distinguished but average about 23·5 × 18·2 mm. The breeding-season seems to be principally April but probably extends into May. They breed from the level of the Plains up to about 2,500 feet.

**Habits.** Similar to those of *S. m. malabarica*.

## (984) Sturnia malabarica andamanensis.

THE ANDAMAN WHITE-HEADED MYNA.

*Temenuchus andamanensis* Tytler, Beavan, Ibis, 1867, p. 329 (Andamans).
*Sturnia andamanensis.* Blanf. & Oates, i, p. 529.

**Vernacular names.** None recorded.

**Description.** Whole head, neck and lower plumage, except under tail-coverts, white; the latter pale rufous; back and rump pale grey; central tail-feathers black glossed with green; outer tail-feathers pale rufous with black bases; wings black with green reflections on the margins.

**Colours of soft parts.** Iris pure white to pearly or bluish white; bill yellow with the base smalt-blue; legs and feet pale yellow to fleshy-yellow, claws horny.

**Measurements** rather larger than *S. m. malabarica*; wing 103 to 113 mm.; tail 75 to 76 mm.; culmen 20 to 21 mm.; tarsus 27 to 28 mm.

**Distribution.** Andamans only.

**Nidification.** Similar to that of the other races. Osmaston describes the nest as being made of small pliant twigs and a feather or two, placed in a hole in a tree at any height from 6 to 30 feet or more. They breed from the end of March to the middle of May. Twenty eggs average 25·5 × 19·0 mm.: maxima 27·1 × 19·0 and 26·1 × 20·3 mm.; minima 24·0 × 18·9 and 25·1 × 17·9 mm.

**Habits.** The same as those of the other races.

## (985) Sturnia malabarica erythropygia.

THE NICOBAR WHITE-HEADED MYNA.

*Sturnia erythropygia* Blyth, J.A.S.B., xv, p. 34 (1846) (Car Nicobars); Blanf. & Oates, i, p. 529.

**Vernacular names.** None recorded.

**Description.** Differs from the last bird in having the rump and upper tail-coverts rufous-chestnut and in having the chestnut of the tail and under tail-coverts much deeper in colour.

**Colours of soft parts** as in the Andaman Myna.

**Measurements.** Wing 112 to 120 mm.

**Distribution.** Car Nicobar only.

**Nidification** does not differ from that of the other races. A single egg taken by Osmaston measures 25·1 × 19·0 mm. and was found on the 21st of April.

**Habits** the same as those of all the other *Sturnia malabarica* group.

## (986) Sturnia malabarica katchalensis.

RICHMOND'S WHITE-HEADED MYNA.

*Sturnia erythropygia katchalensis* Richmond, Proc. U.S. Nat. Mus., xxv, p. 293 (1902) (Katchal).

**Vernacular names.** None recorded.

**Description.** "The six skins of this form all differ from *S. erythropygia* in having the pale rump and upper tail-coverts of *S. andamanensis* with the smaller dimensions of the latter." It has the roseate under tail-coverts, thighs and abdomen of *S. erythropygia*.

**Measurements.** "Length 219 mm.; wing 106 mm.; tail 71 mm.; tarsus 25·5 mm.; culmen 21·5 mm." (*Richmond*).

**Distribution.** Island of Katchal.

**Nidification** and **Habits.** Nothing recorded but almost certainly similar to those of the rest of the genus.

## (987) Sturnia malabarica nemoricola.

THE WHITE-WINGED MYNA.

*Sturnian emoricola* Jerdon, Ibis, 1862, p. 22 (Thayetmyo, [Upper] Burma); Blanf. & Oates, i, p. 528.

**Vernacular names.** None recorded.

**Description.** Very similar to *S. m. malabarica* but with the forehead, crown, chin and throat a purer pearly grey. In adults the winglet, primary-coverts and, generally, the bastard primary are white or rosy white.

**Measurements.** Wing 94 to 103 mm.

**Colours of soft parts** as in *S. m. malabarica*.

**Young birds** and **Nestlings** are not distinguishable from *S. m. malabarica*, though in some cases there are traces of white on the wing.

**Distribution.** Kachin Hills and S. Shan States, through Central Burma to Peninsular Burma and Siam about as far South as Muleyit.

**Nidification.** Places its nest in holes in trees like the other *Sturnias*, laying three to five eggs indistinguishable from those of the other races. Those few I have seen average very big, perhaps abnormally so, 26·5 × 19·6 mm. Oates found them breeding in Pegu in May and June, whilst Macdonald and Col. Harington obtained their eggs in Upper Burma in May.

**Habits** the same as those of the other races.

## Genus **AGROPSAR.**

*Agropsar*, Oates, Avifauna B. I., i, p. 530 (1890).

Type, *Agropsar sturninus*.

This genus differs very considerably from *Sturnia*. Its bill is shorter and more massive, the tail is very short and is forked, parts of the plumage are glossy and it has a more pointed wing. The nasal membrane also is plumed only at the posterior corner.

The sexes are alike. It contains one species only, which is migratory.

### (988) **Agropsar sturninus.**

THE DAURIAN MYNA.

*Gracula sturnina* Pall., Reis. Russ. Reich., iii, p. 695 (1776) (Dauria).
*Agropsar sturninus*. Blanf. & Oates, i, p. 530.

**Vernacular names.** None recorded.

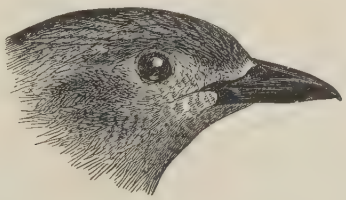


Fig. 12.—Head of *A. sturninus*.

**Description.** Crown, nape, neck and upper back grey with a metallic purple patch on the nape; back, rump and wing-coverts metallic purple; median wing-coverts purple-black, broadly tipped with buffy-white, greater coverts black glossed with green and tipped with buff; primary-coverts black edged with glossy green; primaries dark brown very narrowly edged with buff and with broad buff patches on the basal halves of the inner webs; visible portions of secondaries metallic green with terminal buff spots; outer webs of scapulars buff or buffy-white; lores and a ring round the eye white; sides of head, neck and lower plumage pale grey, the chin tinged with rufous; tail

metallic green, the outermost feathers edged with buff; under tail-coverts buff; axillaries and under wing-coverts pale grey.

**Colours of soft parts.** Iris dark brown; bill horny-brown to almost black, the base of the lower mandible bluish-white; legs and feet greenish-brown to horny-brown.

**Measurements.** Total length about 190 to 200 mm.; wing 104 to 109 mm.; tail 48 to 53 mm.; tarsus about 26 mm.; culmen about 14 to 16 mm.

**Young birds** have the metallic colours replaced by brown; the rufous rump is hardly noticeable but the rufous edges to the primaries are more pronounced; the chin is pure grey and the buff markings on the scapulars and wings are pale and dull.

**Distribution.** Breeding in Eastern Siberia and Northern China; in Winter to Southern China, the Indo-Burmese countries, the whole of the Malay Peninsula and peninsular Siam and Burma. There is also a specimen in the British Museum apparently obtained by Captain Fulton in Chitral at 11,000 feet on 16.7.1902.

**Nidification.** Unknown.

**Habits.** This is said to be a tame and confiding bird haunting well-wooded but open country and having much the same habits as the birds of the genus *Sturnia*. It feeds both on the ground and on trees, has a swift straight flight and a sweet, short song in the breeding-season.

## Genus **AMPELICEPS.**

*Ampeliceps* Blyth, J. A. S. B., xi, p. 194 (1842).

Type, *Ampeliceps coronatus* Blyth.

The genus contains a remarkable Myna, which may be recognized by its bright black and yellow plumage, its long crest and its nude orbits.

In this genus the bill is shorter than the head, wide at the base, with the culmen well curved; the frontal feathers are curly, growing both upwards and inwards and inclining over the base of the bill; a large space round the eye is quite bare. The wing is very long and pointed and the tail short and square.

The sexes are alike.

### (989) **Ampeliceps coronatus.**

THE GOLD-CRESTED MYNA.

*Ampeliceps coronatus* Blyth, J. A. S. B., xi, p. 194 (1842) (Tenasserim); Blanf. & Oates, i, p. 531.

**Vernacular names.** *Dao-maina-rajah* (Cachari).

**Description.** Forehead, crown and crest, face, chin and throat bright golden yellow; a patch of yellow at the base of the third to

the eighth primary on the outer webs and a bigger white patch on the inner webs from the second to the eighth; remainder of the plumage glossy black with green reflections.

**Colours of soft parts.** Iris dark brown; bill orange, bluish at the gape, ophthalmic skin yellow, turning to orange in the breeding-season; legs and feet dull orange, claws brown.

**Measurements.** Total length about 210 mm.; wing 121 to 133 mm.; tail 59 to 63 mm.; tarsus about 27 mm.; culmen about 14 mm.

**Young birds** have the whole head black but nearly always with a trace of yellow on the throat. The black seems to be discarded by degrees, streaks and patches of black remaining until the second year.

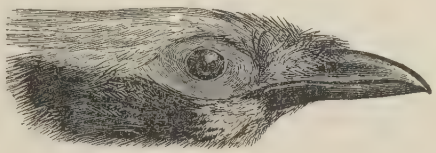


Fig. 13.—Head of *A. coronatus*.

**Distribution.** Assam and Eastern Bengal, Cochin China, Siam and South Burma to Trang in the North Malay Peninsula, Annam. It will probably be found in the lower hills and broken country throughout Burma to Toungoo, the most Northern Burmese point yet recorded.

**Nidification.** This beautiful Myna places its nest, a very rough affair of fine twigs, leaves and bark, in a hole in a tree 20 to 40 feet from the ground. Davison found three young in a nest on the 13th of April. Hopwood took eggs on the 30th of the same month in Tavoy and Nagas brought Dr. Coltart and myself eggs with the parent birds in May. The eggs are like those of *Acridotheres* but paler and measure about 28·0 × 20·0 mm. The number laid appears to be always three.

**Habits.** The Gold-crested Myna is as arboreal in its habits as the preceding genera, feeding almost entirely in high trees on both insects, seeds and fruits. Its flight is very rapid and its chattering notes, hardly a song even at their best, are sweet and pleasing. It collects in small parties but is not nearly so gregarious as the species of *Sturnia* and may often be seen in pairs or just three or four birds together. It is found in the Plains all the year round and up to about 4000 feet in Summer, though it generally breeds below 2,000 feet.

## Genus STURNORNIS.

*Sturnornis* Legge, B. of Ceylon, p. 679 (1879).

Type, *Sturnornis senex* Temm.

The sole species representing this genus is very close to *Sturnia* but somewhat approaches the ground-feeding Mynas in its stouter bill and shorter, more rounded wing. It has a triangular patch of bare skin behind the eye.

The sexes are alike.

### (990) Sturnornis senex.

THE CEYLON WHITE-HEADED MYNA.

*Heterornis senex* Temm., Bonaparte, Consp. Av., i, p. 419 (1851) (Bengal, *in errore*; Ceylon).
*Sturnornis senex*. Blanf. & Oates, i, p. 534.

**Vernacular names.** *Māyinā* (Cing.).

**Description.** Whole head white; nape and sides of neck dull black with white shafts to the feathers; remainder of upper plumage, wings and tail black, the first slightly, the others strongly, glossed with very dark green; the whole lower plumage rather dark lavender-grey with white shaft-stripes, boldest on the breast; under tail-coverts buffy-white; axillaries and under wing-coverts white, slightly mottled with black.

**Colours of soft parts.** "Iris dull whitish, with a narrow brown inner circle; orbital skin and eyelid dull bluish; bill, gape and base plumbeous-blue, the apical half bluish-brown; legs and feet bluish-plumbeous, claws bluish" (*Legge*).

**Measurements.** Total length about 230 mm.; wing 105 to 110 mm.; tail 69 to 73 mm.; tarsus about 26 mm.; culmen about 20 to 21 mm.

**Young birds** have the whole crown black.

**Nestling.** "Forehead, head and hind neck concolorous and of a dull brown hue; a whitish superciliary stripe passes from the nostrils over the eye; the ear-coverts are sullied white, but the white of the throat seems to extend lower down and to change abruptly into the dark grey of the chest and".... "there are no white mesial stripes" (*Legge*).

**Nidification.** Mr. Lewis took two eggs of this bird in April from a hole in the stem of a tree, which had been laid on the bare wood with no semblance of a nest. They were pale blue in colour, in shape narrow pointed ovals and "they measured 1·01″×0·79″" (*Wait*). Eggs sent me from Ceylon and supposed to be of this Myna are of the usual blue colour and could not be distinguished from large eggs of *Sturnia m. malabarica*.

**Habits.** This Starling is arboreal in its habits, haunting fruit-bearing trees in heavy forest in small flocks. Its diet seems to be

mainly frugivorous, though it doubtless eats a certain number of insects also. Its voice is said to be a soft chattering and its flight fairly quick and direct.

## Genus TEMENUCHUS.

*Temenuchus* Cab., Mus. Hein., Th. i, p. 204 (1850).

Type, *Temenuchus pagodarum*.

The genus *Temenuchus* forms a connecting link between the arboreal Mynas already dealt with and the terrestrial ones which follow and have rounder wings and stouter tarsi than the former.

The genus contains one Mynah, which is a very familiar bird all over India.

It is characterized by a very long crest; the bill is about half the length of the head with the culmen slightly curved; the nasal membrane is plumed and there is no nude skin on the sides of the head; the wing is blunt and the tail is slightly graduated. The sexes are alike.

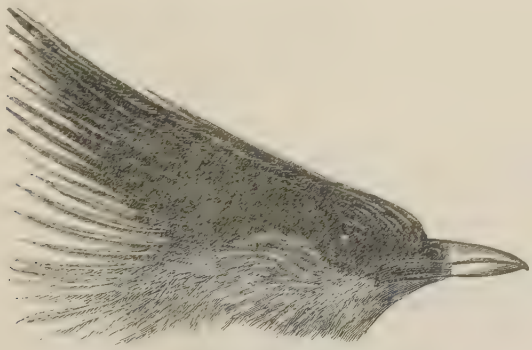


Fig. 14.—Head of *T. pagodarum*.

### (991) Temenuchus pagodarum.

THE BLACK-HEADED MYNA.

*Turdus pagodarum* Gmel., Syst. Nat., i, p. 816 (1789) (Malabar).
*Temenuchus pagodarum*. Blanf. & Oates, i, p. 533.

**Vernacular names.** *Popoya maina*, *Bamuni maina*, *Puhaia* (Hind.); *Monghyr pawi*, *Brahmini maina* (Beng.); *Pabiya pawi* (Muttra); *Papata gorinki* (Tel.); *Popata pariki*, *Rawanati* (Tam.); *Martintro* (Port. in Ceylon).

**Description.** Head, forehead to nape and long crest glossy black; sides of head and neck, back of latter, chin, throat and breast to abdomen rich buff, the feathers of all but the lower

breast lengthened and with faint pale shaft-stripes; remaining upper plumage, wing-coverts and inner secondaries grey; primary-coverts and primaries black; the edge of the shoulder of the wing white; central tail-feathers grey-brown, the lateral feathers dark brown with white tips increasing on the outermost feather to half the inner and two-thirds the outer web; axilliaries and under wing-coverts white; vent, thigh-coverts, posterior flanks and under tail-coverts white more or less tinged grey.

**Colours of soft parts.** Iris white to greenish or pearl-white; bill yellow, blue at the base and greenish in between; legs and feet bright yellow.

**Measurements.** Total length about 190 mm.; wing 102 to 109 mm.; tail 67 to 71 mm.; tarsus about 29 mm.; culmen about 18 to 19 mm.

**Young birds** are light brown above with a darker brown cap and dark brown tail- and wing-quills; below, the colour is a pale dull buffy-brown; the markings on the lateral tail-feathers are dull and less in extent.

**Distribution.** The whole of India from Ceylon to the Himalayas up to 4,000 or 5,000 feet. It has been found in Afghanistan and in Gilgit at 8,000 feet. To the East it is rare in extreme Eastern Bengal but it occurs in Dacca, where I have seen it, as also in Gowhati in Western Assam. Its occurrence in Arakan has never been confirmed and Blyth's record is probably due to an error.

**Nidification.** This handsome, sprightly little Myna breeds during May and June but eggs have been taken as early as April and as late as August. It makes its nest in almost any kind of hole in tree, stump or building; over most of its area it prefers trees but in Madras Jerdon says it generally builds in houses, pagodas, etc., from which habit it takes its name. The lining placed in the hole is nearly always rather meagre, consisting of a few leaves, scraps of grass and other oddments, sometimes with a scanty lining of feathers or wool. The eggs number three or four, rarely five, and are exactly like those of the genus *Sturnia*. One hundred eggs average 24·6×19·1 mm. and the extremes are: maxima 29·2×20·3 mm.; minima 21·8×16·8 mm. (*Hume*).

They breed up to 4,000 feet but generally below 2,000 feet and in the Plains everywhere.

**Habits.** The Black-headed Myna is found everywhere except in heavy forest and in the desert portions of the North-West. It is typically a plains' bird but straggles up to great heights occasionally. It feeds both on the ground and on trees; at times it may be seen among cattle with the Common Myna, feeding on grasshoppers and insects, whilst at other times it feeds on lofty flowering trees in company with the Grey-headed Myna and other arboreal birds. It is very tame and confiding and a very cheerful bird in all its ways; even its notes are pleasing, whilst during the

breeding-season they almost rise to the dignity of a song. In flight it is less swift and straight than the truly arboreal Mynas but quicker and steadier than the ground-feeding species.

## Genus GRACUPICA.

*Gracupica* Lesson, Traité, p. 401 (1831).

Type, *Gracupica nigricollis* Paykull.

The principal characteristic of the genus *Gracupica* is the large extent of the bare orbital skin. The bill is long and stout with the culmen gently curved; the feathers of the forehead are short and inclined backwards.

*Key to Species.*

A. Bill black; lower plumage white ..... *G. nigricollis*, p. 49.
B. Bill red; lower plumage vinous.
  *a*. Lower rump ashy-brown like the back .. *G. burmanica*, p. 50.
  *b*. Lower rump buff, contrasting with back .. *G. leucocephala*, p. 51.

## (992) Gracupica nigricollis.

THE BLACK-NECKED MYNA.

*Gracula nigricollis* Payk., Stockholm Acad. Handl., xxviii, p. 291 (1807) (China).
*Graculipica nigricollis*. Blanf. & Oates, i, p. 534.

**Vernacular names.** *Zayet* (Burmese); *Nok-king-krong* (Siam).

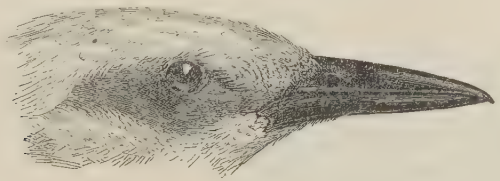


Fig. 15.—Head of *G. nigricollis*.

**Description.** Whole head white followed by a broad black collar round the lower throat and neck; next the collar on the back is a band of black feathers broadly tipped and margined with white; a broad white band across the rump; remainder of upper plumage, wing-coverts, scapulars and inner secondaries dark brown with white tips, often abraded or obsolete on the back; primary-coverts all white; primaries dark brown very narrowly tipped white; below white; axillaries and under wing-coverts black and white.

**Colours of soft parts.** "Iris creamy grey, skin round eye chrome-orange; beak black-brown; legs and feet dull ivory" (*Forrest*).

**Measurements.** Total length about 275 mm.; wing 150 to 159 mm.; tail 87 to 91 mm.; tarsus 41 to 42 mm.; culmen about 29 to 30 mm.

**Young birds** have the whole head and neck light brown.

**Distribution.** South China, the whole of the Indo-Chinese countries, Shan States, Kachin Hills, Siam and Southern Burma.

**Nidification.** This Myna breeds from the level of the Plains up to nearly 5,000 feet in Siam, Burma and the Shan States. In Siam it lays from March to July, whilst in Maymyo, Upper Burma, eggs have been taken as late as August. It builds a huge untidy nest of grass, leaves and miscellaneous odds and ends, domed and placed high up in a tree or Palm. It is a very conspicuous sight, added to by the fact that several birds sometimes breed in company. The eggs number three, more rarely four and are just like large specimens of the Common Myna, perhaps when fresh a rather richer blue. Fifty eggs average 32·4 × 22·5 mm.: maxima **37·4 × 24·5** mm.; minima **29·4** × 21·7 and 30·6 × **21·5** mm.

**Habits.** This is a Myna of open country and is a familiar bird is the vicinity of towns and villages. It seeks its food almost entirely on the ground and is as good an exterminator of locusts and grasshoppers as is the Common Myna. It is sturdy on the leg but not as good a flier as the genera already dealt with, whilst its notes are said to be harsh and discordant. It is a noisy bird and collects in flocks in the evenings before roosting, as do so many others of this Family.

## (993) Gracupica burmanica.

JERDON'S MYNA.

*Sturnia burmanica* Jerdon, Ibis, 1862, p. 21 (Thayetmyo, U. Burma).
*Graculipica burmanica.* Blanf. & Oates, i, p. 535.

**Vernacular names.** *Zayet* (Burm.).

**Description.** Whole head and upper breast dirty white; back and scapulars dark grey paling on the rump and upper tail-coverts; central tail-feathers dark bronze-brown, lateral tail-feathers black at the base with broad white tips; wing-coverts and secondaries bronze with well-defined black margins; primary-coverts black with white tips; primaries blackish with narrow bronze tips and white bases; breast, flanks and abdomen vinous pink; vent, thigh-coverts and tail-coverts white; axillaries and under-wing-coverts white.

**Colours of soft parts.** Iris light yellow to dark brown; eyelids and orbital skin plumbeous; bill red, the lower base of the maxilla and half the mandible black; legs and feet yellow to orange-yellow.

**Measurements.** Total length about 250 mm.; wing 110 to

120 mm.; tail 71 to 79 mm.; tarsus about 31 to 32 mm.; culmen about 22 to 24 mm.

**Distribution.** Practically the whole of Burma, from Mt. Victoria in the Chin Hills to Pegu; Kachin Hills, Shan States.

**Nidification.** This Myna breeds in great numbers in Upper Burma and Col. H. H. Harington, who took numerous nests, writes *in epistola*,: "*G. burmanica* is the Common Myna of Upper Burma in the jungles. It breeds both in holes in trees and in *zyats* and houses. I found a pair building in the verandah of the dak-bungalow at Kalaura in May. . . . It breeds probably from April to June."

The eggs are typical Mynas', dark Thrush-egg blue in colour, stout and rather coarse in texture, with a fair gloss, whilst in shape they are shorter, broader ovals than those of the Black-necked Myna. Fifty eggs average 27·3 × 21·0 mm.: maxima 29·5 × 21·6 and 29·1 × 23·0 mm.; minima 24·4 × 19·2 and 26·0 × 19·0 mm.

They breed up to an elevation of about 6,000 feet.

**Habits.** A forest and village bird rather than one of towns and cities but otherwise a typical Myna in all its ways. It haunts both trees and ground in its search for food but preferably the latter. Like so many others of the family it is very gregarious and assembles in large flocks in the evening and then indulges in much loud chattering and squabbling.

## Gracupica leucocephala.

*Key to Subspecies.*

A. First primary pure white..... *G. l. leucocephala*, p. 51.
B. First primary tipped with black..... *G. l. annamensis*, p. 52.

### (994) Gracupica leucocephala leucocephala.

HUME'S MYNA.

*Acridotheres leucocephalus* Gigl. & Salv., Atti R. Acc. Sci. di Tor., v, p. 273 (1870) (p. 185, Siam).
*Graculipica leucocephala.* Blanf. & Oates, i, p. 536.

**Vernacular names.** None recorded.

**Description.** Forehead and crown yellowish white or yellowish grey; back of the neck vinous rufous; back and scapulars ashy-greenish black; lower rump buff; tail black with broad buff tips; wing like that of *G. burmanica* but with the white greater in extent and more conspicuous; chin and throat albescent; breast, flanks and abdomen rosy vinous; vent and under tail-coverts pinkish buff; axillaries and under wing-coverts rosy white.

**Colours of soft parts.** Iris pearl-white to bluish grey; bill yellow, reddish at the base; legs and feet yellow to tan.

**Measurements.** Total length about 250 mm.; wing 120 to 130 mm.; tail 70 to 75 mm.; tarsus about 32 mm.; culmen about 21 to 22 mm.

**Young birds** have the crown of the head brown and the whole plumage duller.

**Distribution.** Cochin China, Siam and Tenasserim. Hume's *incognita* cannot be sustained, as the specimens to which the name was given are undoubtedly nothing more than young examples of *G. leucocephala*, similar specimens having been obtained all over the range of that bird. A specimen procured "near Perak" and sent to me for identification was undoubtedly of this species.

**Nidification.** Eggs sent me with a specimen of this species from "near Perak" are like small eggs of the preceding bird and measure between 25·0 × 19·5 and 26·9 × 21·0 mm. They were taken on the 19th of May and the 25th of April.

**Habits.** Apparently similar to those of *Gracupica burmanica*.

## (995) Gracupica leucocephala annamensis.

WELLS'S MYNA.

*Graculipica leucocephala annamensis* Wells, Bull. B. O. U., xxxix, p. 76 (1919) (Nhatrang, Annam).

**Vernacular names.** None recorded.

**Description.** Differs only from the preceding bird in having the first, or bastard, primary always broadly tipped with black instead of pure white.

**Colours of soft parts** and **Measurements** as in the last bird; wing 118 to 130 mm.

**Distribution.** Annam and Northern Shan States. Kloss, perhaps rightly, does not admit this race, but in the material available for comparison in the British Museum the above character holds good, so I retain it for the present.

**Nidification** unknown.

**Habits.** Those of the genus.

## Genus ACRIDOTHERES.

*Acridotheres* Vieill., Analyse, p. 42 (1816).

Type, *Acridotheres tristis* Linn.

In *Acridotheres* the nasal and frontal plumes are lengthened and erect, or slightly curled backwards. There is a large patch of bare skin beneath and behind the eye. The feathers of the crown are elongated and pointed. The bill is shorter than the head, with the culmen curved, the wing very blunt and the tail considerably rounded. The sexes are alike.

*Key to Species.*

A. Under wing-coverts and axillaries white ..... *A. tristis*, p. 53.
B. Under wing-coverts and axillaries buff ..... *A. ginginianus*, p. 55.

## Acridotheres tristis.

*Key to Subspecies.*

A. Not so dark above. Primary-coverts entirely white ..... *A. t. tristis*, p. 53.
B. Much darker above. Primary-coverts half black and half white ..... *A. t. melanosternus*, p. 55.

### (996) Acridotheres tristis tristis.

The Common Myna.

*Paradisea tristis* Linn., Syst. Nat., 12th ed. i, p. 167 (1766) (? Philippines *in errore*. *Calcutta*).
*Acridotheres tristis*. Blanf. & Oates, i, p. 537.

**Vernacular names.** *Desi-maina* (Hind.); *Salik*, *Bhat-salik* (Beng.); *Bemni*, *Saloo* (Chota Nagpur); *Salonka* (Mahr.); *Gorwantera* (Can.); *Goranka*, *Gorinka* (Tel.); *Zayet* (Burm.); *Daomaina* (Cachari); *Halik-Sorai* (Assam); *Nok salika* (Siam).

**Description.** Whole head and neck glossy black shading to deep blackish grey on lower hind neck and upper breast; upper plumage, wing-coverts and secondaries vinous brown; secondaries tinged with bronze and with fine darker edges; primaries dark brown with a broad white patch at the base; tail brownish black with white tips; breast, flanks and thighs rich vinous brown; vent, under tail-coverts and more or less of the centre of the abdomen white; under wing-coverts and axillaries white.

**Colours of soft parts.** Iris red to red-brown, sometimes flecked with white; eyelids and orbital skin yellow; bill wax-yellow to bright yellow; legs yellow, claws horny.

**Measurements.** Total length about 250 mm.; wing 140 to 149 mm.; tail 83 to 89 mm.; tarsus about 38 to 40 mm.; culmen 18 to 22 mm.

**Young** like the adult but dull, browner and with the black head more ashy-brown.

**Distribution.** The whole of the Indian Empire from the extreme South up to about 8,000 feet in the Himalayas; all Burma to Tavoy in the South and East to Central Siam, where of recent years it has become quite common. It is found both in Baluchistan and Afghanistan. Specimens from South Travancore are very dark and somewhat approach the Ceylon race, *melanosternus*. They might by some systematists be separated as a geographical

race but its limits cannot be defined and, as between all geographical races there must be more or less of an indeterminate intermediate area, I retain the Travancore bird as *A. t. tristis*.

**Nidification.** The Common Myna breeds throughout its range principally in the months of May and June but eggs may be taken any time between March and August, whilst in the Andamans they are said to breed all the year round. They breed at least up to 8,000 feet, and are now common at this elevation in several places in the Himalayas. Normally they make their nests in holes in trees and buildings or in cliffs but they also sometimes build them in trees. Tickell, Adams and Betham all describe such nests as cup-shaped, but the few I have seen have all been huge domed affairs like those of the Pied Myna. When placed in a hole there is no particular shape and all sorts of materials are used whilst, often, old nests are refurbished up with a little more grass and leaves. They frequently rear two or three broods in a season.

The eggs are uniform blue, with a slight gloss when fresh. The normal clutch is four or five, six very rarely, and I have seen three incubated. One hundred eggs average 30·8 × 21·9 mm.: maxima 35·0 × 22·3 and 33·0 × 23·2 mm.; minima 27·6 × 19·2 mm.

**Habits.** This Myna is one of the most universally common birds in India and is rapidly becoming more common in areas where it was but recently unknown or merely a rare straggler. This is especially the case in the hills, where these birds have followed mankind to higher elevations and into places where the country is being opened up. They are essentially birds of civilization, of towns, cultivated country, gardens and orchards and are not found in jungles and forests until man has prepared the way for them. They form excellent pets and though so common are favourite cage-birds with Indians, for they are hardy and intelligent and their extreme conceit renders them very amusing. They are mainly insect-feeders and do an immense amount of good by killing grasshoppers, locusts, their larvæ and other destructive insects. They also eat grain and fruit and sometimes do considerable damage to the former when it is ripe. They feed almost entirely on the ground, wandering about with cattle, upon whose backs they sometimes sit and pick off the ticks.

In the evening these birds often assemble in great numbers, together with Crows and Pied Mynas, in clumps of trees and bamboos and, on these occasions, the fuss and commotion accompanied by an endless harsh chattering must be seen and heard to be appreciated. Even after they have settled down to sleep a passing dog or jackal, an inquisitive Owl or some other night marauder, will start them off again and the situation has to be discussed noisily and at length before peace again obtains. It is worthy of record that some of the more popular nesting-places continue to be occupied during the breeding-season; when the cocks always and the hens, until they commence to sit, continue to resort to them.

## (997) Acridotheres tristis melanosternus.

THE COMMON CEYLON MYNA.

*Acridotheres melanosternus* Legge, A. M. N. H. (5) iii, p. 168 (1879) (Ceylon); Blanf. & Oates, i, p. 538.

**Vernacular names.** *Gon kawada*, *Gon-kowdichya* (Cing.); *Nakanam pachchi*, *Naklan* (Tam.).

**Description.** Differs from *A. t. tristis* in being much darker everywhere. The black head is not sharply defined from the dark vinous brown back; the vinous underparts are darker and overlaid with an ashy-black wash; the wing-spot is smaller and less conspicuous, the primary-coverts being partly black.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 135 to 142 mm.

**Distribution.** Ceylon only.

**Nidification.** Similar to that of the preceding bird. Fifty eggs average 29·7 × 21·5 mm.: maxima 32·9 × 21·7 and 32·2 × 22·6 mm.; minima 28·0 × 20·9 mm. The full clutch is three or sometimes four and very exceptionally five.

**Habits.** Those of the preceding bird, though it is less common and therefore less ubiquitous.

## (998) Acridotheres ginginianus.

THE BANK MYNA.

*Turdus ginginianus* Lath., Ind. Orn., i, p. 362 (1790) (India) (*Nadia*).
*Acridotheres ginginianus.* Blanf. & Oates, i, p. 538.

**Vernacular names.** *Ganga-maina* (Hind.); *Gang-Salik*, *Ram-Salik* (Beng.); *Bardi-maina* (Nep.); *Lali* (Sind); *Gilgila* (Upper Prov.); *Daryta-maina* (Lucknow).

**Description.** Sides of head and crown black; upper plumage grey, generally palest next the black crown; edge of wing and primary coverts pinkish buff; remainder of wing black with bronze-green reflections on the inner secondaries; primaries with a patch at their base, white on the outer, buff on the inner; tail black tipped with buff, broadest on the outer feathers where it extends to half of the inner and two-thirds of the outer web; below grey, darkest on the throat and chin; centre of abdomen, vent, and under tail-coverts, axillaries and under wing-coverts pinkish buff.

**Colours of soft parts.** Iris deep blood-red in the adult, bluish grey in the young; naked orbital skin brick-red; bill yellow; legs and feet pale yellow.

**Measurements.** Total length about 250 mm.; wing 119 to 125 mm.; tail 68 to 73 mm.; tarsus 37 to 38 mm.; culmen 18 to 21 mm.

**Young birds** have the head and neck brown; the upper parts much more brown than in the adult; the wings brown with no gloss and the grey flanks and breast-feathers edged with buff.

Birds from N.E. India, from Nepal and Bengal eastwards, seem very dark, but the material available for examination is poor and I do not separate them pending further examination of more skins.

**Distribution.** Northern India from Sind and Mussorie to Eastern Bengal and Western Assam, where it occurs in Kamrup. It has not been found anywhere East of Bengal.

**Nidification.** The Bank Myna breeds wherever found, except perhaps in the higher hills, during June and July, sometimes in May and occasionally in August. It breeds in colonies of a dozen to forty pairs, making holes in the banks of rivers, wells, cliffs and even borrow pits beside roadways. In soft soil these may be as much as six or even seven feet long, but in harder soil anything from two to four, of which the chamber takes up eight to twelve inches. The nest is merely a rough pad of grass, leaves and rubbish, but very often has one or more cast snake-skins mixed with the rest. The eggs number three to five, nearly always four, and are just like those of *A. tristis* but on an average shorter, stouter and more glossy.

**Habits.** Very like those of *A. tristis* but not nearly so confiding, nor does it exclusively haunt the vicinity of man as that bird does. It keeps to open country and to cultivated land but, generally, away from villages and dwellings.

## Genus ÆTHIOPSAR.

*Æthiopsar* Sharpe, Cat. Birds B.M., xxii, p. 79 (1896).

Type, *Æthiopsar fuscus* Wagler.

The genus *Æthiopsar* differs from *Acridotheres* in having the sides of the head and the eyelids well feathered instead of bare when adult.

The genus is represented within our area by three species, one distributed over practically the whole of the Indian Empire, two found only from Assam and Manipur eastwards.

*Key to Species.*

A. With no collar on sides of neck.
  *a.* Base of mandible blue ..... *Æ. fuscus*, p. 56.
  *b.* Base of mandible yellow ..... *Æ. grandis*, p. 59.
B. With a white collar on sides of neck ..... *Æ. albocinctus*, p. 60.

## Æthiopsar fuscus.

*Key to Subspecies.*

A. Larger, wing over 120 mm. ..... *Æ. f. fuscus*, p. 57.
B. Smaller, wing under 120 mm. ..... *Æ. f. torquatus*, p. 58.

## (999) Æthiopsar fuscus fuscus.

### The Indian Jungle Myna.

*Pastor fuscus* Wagl., Syst. Av., *Pastor*, sp. 6 (1827) (India. Restricted to E. Bengal, Stuart Baker, 1921).
*Æthiopsar fuscus.* Blanf. & Oates, i, p. 539.

**Vernacular names.** *Pāhari maina* (Hind.); *Jhonti maina* (Hind. in Beng.); *Jhont salik*, *Jungli salik* (Bengali); *Tau Zayet* (Burm.).

**Description.** Upper part of head and crest glossy black, changing to dark cinereous brown on back, rump, upper tail-coverts and lower wing-coverts; tail blackish brown; the centre tail-feathers narrowly, the others more broadly tipped with white; primary-coverts and bases of primaries white; winglet and rest of primaries black, the latter tipped with bronze; outer secondaries black on the inner webs, bronze on the outer; inner secondaries and wing-coverts bronze narrowly edged with black; chin, throat and upper breast dark ashy-grey, almost black on the chin, paling to ashy-brown on the lower breast and flanks and still paler on the abdomen; thigh-coverts dark grey; lower tail-coverts white, with blackish bases.

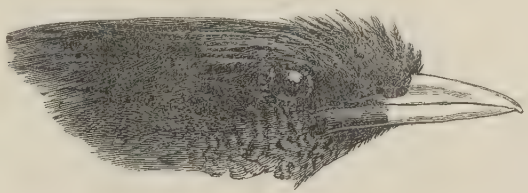


Fig. 16.—Head of *Æ. f. fuscus.*

**Colours of soft parts.** Iris bright yellow in Northern India and Burma, grey or pale blue-grey in Southern India; bill bright yellow, the base deep blue; mouth blue; legs and feet orange or chrome-yellow; claws darker.

**Measurements.** Total length about 250 mm.; wing 118 to 130 mm., nearly always over 120 mm.

**Young birds** are all brown above, rather darker on the head and paler on the rump; below, the chin, throat, and breast are vinous brown paling to fulvous brown on the abdomen; vent and under tail-coverts fulvous white. The bill is wholly yellow and the legs paler chrome; iris glaucous blue-grey.

**Distribution.** The whole of India and Burma, excluding the deserts of Sind, Rajputana and the driest portions of the North-West; this form extends South to Travancore in India and to Rangoon in Burma.

I cannot separate *mahrattensis* of Sykes. The Southern bird differs only in the adult not acquiring a yellow iris. It is no smaller than the Northern bird.

**Nidification.** In Southern India the Jungle Myna breeds from February to May and in Northern India from April to July, though many nests with eggs and young may be found both earlier and later. They have much the same breeding habits as *Acridotheres t. tristis* but do not keep only to villages, towns and open country, being also found in light forest or the outskirts of heavy forest. Preferably also they select holes in trees as nesting sites but sometimes use holes in walls and buildings, especially such as are deserted and derelict. The nest consists of a pad of all kinds of material, but they use moss more often in the construction of the nest than the Common Myna does, whilst the lining nearly always consists in part of feathers. They lay four or five eggs, sometimes six, just like those of the Common Myna but smaller. One hundred eggs average 28·9 × 20·9 mm.: maxima **32·8** × 21·3 and 30·0 × **23·0** mm.; minima **26·0** × 19·8 and 26·5 × **19·6** mm. Though not building in actual colonies, several pairs often breed close to one another.

**Habits.** This Myna is found up to about 5,000 feet or a little higher throughout the Outer Himalayas and the hills South of the Brahmaputra during the breeding-season, but these birds retire to the plains or lower hills in Winter. In the Nilgiris, also, it appears to be locally migratory, ascending to some 5,000 feet in Summer. Although it may be found commonly round about all villages in well-wooded country it is distinctly more of a forest bird than *Acridotheres* is. Often it may be found in light forest far from human habitations and I have seen it on the fringes of evergreen and heavy, humid forest on many occasions though never in the interior of these. In habits generally it very closely resembles *Acridotheres* though it is, perhaps, a less noisy, less gregarious bird.

## (1000) Æthiopsar fuscus torquatus.

THE MALAY JUNGLE MYNA.

*Acridotheres torquatus* Davison, Ibis, 1892, p. 102 (Pahang).

**Vernacular names.** *Tau Zayet* (Burmese).

**Description.** Differs from *Æ. f. fuscus* only in being a trifle smaller, the wing measuring from 112 to 121 mm., generally under 119 mm.

**Distribution.** Peninsular Siam and Burma and Malay States.

Davison's original description of this bird was taken from an abnormal specimen, but the name, though so unsuitable, must unfortunately be used.

**Nidification.** Similar to that of the preceding bird. Messrs. Oates, J. M. D. Mackenzie and J. C. Hopwood took eggs from early April to the end of July in Tenasserim. The eggs cannot be distinguished from that of the preceding bird.

**Habits** similar to those of *Æ. f. fuscus.*

## Æthiopsar grandis.

*Key to Subspecies.*

A. Darker ..... *Æ. g. grandis*, p. 59.
B. Paler ..... *Æ. g. infuscatus*, p. 59.

### (1001) Æthiopsar grandis grandis.

THE SIAMESE JUNGLE MYNA.

*Acridotheres grandis* Moore, Horsf. & M., Cat. ii, p. 537 (1856–8) (Sumatra *in errore*, Tenasserim).
*Æthiopsar grandis.* Blanf. & Oates, i, p. 541.

**Vernacular names.** *Nok king krong dam* (Siam).

**Description.** Whole head, nape and crest glossy black; remainder of upper plumage tinged faintly with brown; bases of primaries and greater coverts white; remainder of wing black, the secondaries glossed with bronze; lower plumage blackish brown; under tail-coverts white or fulvous white with black bases.

**Colours of soft parts.** Iris pale chocolate, reddish or orange-brown, hazel; bill wholly yellow, more orange at the base; legs and feet dusky yellow to bright yellow-chrome.

**Measurements.** Total length about 260 mm.; wing 134 to 143 mm.; tail 77 to 88 mm.; tarsus about 37 to 43 mm.; culmen 22 to 23 mm.

**Distribution.** South-West Burma, Eastern Burma from the South Shan States and Karenni to Tenasserim; Yunnan, Siam and Cochin-China.

**Nidification.** Messrs. E. G. Herbert and W. J. F. Williamson found this bird breeding in Siam, placing its nests in holes of trees standing in Paddy cultivation. One nest found by Herbert was placed in a Palmyra palm. They breed from March to July and lay four eggs, sometimes only three. These are exactly like the eggs of *Acridotheres tristis* but a little darker blue in tint and are not quite so big. Twenty eggs average 29·4 × 26·9 mm.: maxima **31·0** × 21·4 and 30·7 × **21·9** mm.; minima **26·8** × 21·0 and 29·8 × **19·8** mm.

**Habits.** Similar to those of *Æthiopsar fuscus*, but this bird keeps away more from human habitations.

### (1002) Æthiopsar grandis infuscatus.

THE ASSAM JUNGLE MYNA.

*Æthiopsar fuscus infuscatus* Stuart Baker, Bull. B. O. C. xxxviii, p. 70 (1918) (Lower Chindwin).

**Vernacular names.** *Hagrani Dao-maina* (Cachari).

**Description.** Similar to *Æ. g. grandis* but distinctly paler and browner above; also paler below and inclined to fulvous on the centre of the abdomen and vent.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Smaller than the preceding bird; wing 120 to 130 mm.

**Distribution.** Northern Burma to Arakan, Manipur, Eastern Assam and Assam South of the Brahmaputra.

**Nidification.** This Myna breeds in Burma in April, May and June. As a rule its nesting habits differ in no way from those of *Æthiopsar fuscus* but it is even more gregarious and often breeds in colonies with other birds, more especially *Æthiopsar albocinctus*. Major Harington writing of these two Mynas remarks:—"One huge decayed branch, which was unsafe to climb, was full of mynas' nests, the birds going in and out like pigeons from a dove-cote. The strangest nesting site of *Æ. grandis* and *albicinctus* was finding their nests in holes along the banks of the river. While going up the river by launch we were surprised to see mynas in numbers flying in and out of holes in the bank. Whether the holes were originally made by other birds and then enlarged by the mynas or dug out entirely by them would be hard to say, as in many cases the mynas were nesting in the same colony as the bee-eaters. Both kinds of mynas were nesting together but generally managed to keep apart. All the nests were of the usual myna type—made of grass, rags, feathers, etc. The most extraordinary thing about the nests was, however, that every nest we pulled out had pieces of snake-skin; we must have examined some dozen nests or more and found it the rule without exception."

"We also found *Æ. grandis* nesting in the roofs of houses and in Npongi clumps."

They lay three to four eggs, sometimes two only, typical Myna's eggs, generally rather long and often pointed at the smaller end. They measure about 29·0 × 21·1 mm.

**Habits.** This Myna seems especially to inhabit country covered with long "Sun" or "Elephant" grass with a fair number of trees for breeding purposes. It is found in the Plains and in the more open grass-covered hills up to about 5,000 feet and, though sometimes haunting villages and cultivated country, on the whole keeping to wilder tracts.

## (1003) Æthiopsar albocinctus.

THE COLLARED MYNA.

*Acridotheres albocinctus* Godw.-Aust. & Wald., Ibis, 1875, p. 251 (Manipur).
*Æthiopsar albocinctus.* Blanf. & Oates, i, p. 541.

**Vernacular names.** None recorded.

**Description.** A broad pale buff collar on either side of the neck, interrupted on the hind neck where the feathers are margined blackish; whole head black, glossed with blue-black on crown and

crest; remaining upper plumage deep black-brown; tail black tipped with white; under plumage from throat deep grey, the feathers of the centre of the abdomen faintly edged greyish white and those of the vent and under tail-coverts more broadly edged with white.

**Colours of soft parts.** Iris yellow, yellowish white, bluish white or bright pale blue; bill wax-yellow tinged with orange at the base; legs and feet chrome-yellow to bright wax-yellow.

**Measurements.** Total length about 240 mm.; wing 110 to 120 mm.; tail 72 to 76 mm.; tarsus about 35 mm.; culmen 23 to 25 mm.

**Young birds** are much paler and browner.

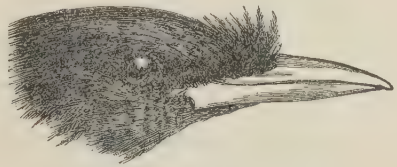


Fig. 17.—Head of *Æ. albocinctus*.

**Distribution.** Manipur and Upper Burma to the Southern Shan States. Once in North Cachar.

**Nidification.** Similar to that of *Æthiopsar fuscus*, but sometimes breeding in holes in river-banks in company with *Æ. g. infuscatus*. Twenty-five eggs average 27·4 × 20·9 mm.: maxima 28·8 × 21·7 and 28·5 × 22·0 mm.; minima 26·1 × 20·0 mm.

**Habits.** Those of the genus.

## Genus STURNOPASTOR.

*Sturnopaster* Hodgs. in Gray's Zool. Misc. p. 84 (1844).

Type, *Sturnopastor contra=capensis* Linn.

The genus *Sturnopastor* consists of a single species, with various geographical races, which ranges from India to Java.

The name as spelt in Gray's Misc. is *Sturnopaster*, but this seems so obviously a clerical error or misprint for *Sturnopastor*, that I retain the latter spelling.

In this genus the sexes are alike. The bill is as long as the head, straight and broad but rather pointed: the nasal membrane is completely feathered; there is no real crest but the feathers of the crown are lengthened and pointed; the eyelids are bare; the wing is blunt with secondaries reaching to within an inch of the tip of the wing.

The name hitherto applied to this Myna, *contra*, cannot be used as Linnæus had already named the same bird *capensis* a few lines further back on the same page. *Contra* is therefore

a pure synonym of *capensis*. There appear to be two well-marked races in India, a darker and a paler, in addition to those already accepted and for the paler of these a new name had to be found; I have accordingly named the Southern and Western paler form *dehræ*. The type-locality of *S. c. capensis* I restrict to Calcutta.

## Sturnopastor capensis.

*Key to Subspecies.*

A. Forehead not streaked with white.
  *a.* Darker ..... *S. c. capensis*, p. 62.
  *b.* Paler ..... *S. c. dehræ*, p. 63.
B. Forehead streaked with white.
  *c.* Back brown distinctly paler than crown ..... *S. c. superciliaris*, p. 64.
  *d.* Back blackish not contrasting with crown ..... *S. c. floweri*, p. 64.

### (1004) Sturnopastor capensis capensis.

THE INDIAN PIED MYNA.

*Sturnus capensis* Linn., Syst. Nat., 12th ed. i, p. 290 (1766) (India).
*Sturnopastor contra.* Blanf. & Oates, i, p. 542.

**Vernacular names.** *Ablak maina* (Hindi); *Ablaka gosalik*, *Guia-leggra* (Beng.).

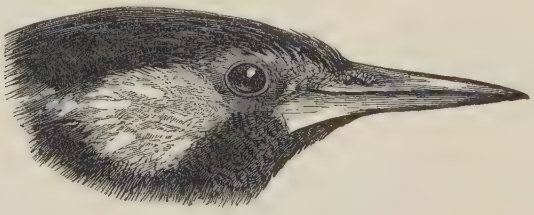


Fig. 18.—Head of *S. c. capensis*.

**Description.** Lores, round the eye, ear-coverts and a few streaks above the nostrils white; a line behind the ear-coverts white or vinaceous white; a few streaks on the shoulders vinaceous; remainder of head, throat and neck black; rump white; remainder of upper plumage deep chocolate-brown, amost black; a bar of white across the wing formed by the white tips of the median wing-coverts; remainder of wing black; lower plumage pale vinaceous grey, paling to white on the vent and under tail-coverts.

**Colours of soft parts.** Iris white to yellow, orbital skin orange; bill deep orange on the basal half, white or pale wax-yellow on the terminal; legs and feet pale yellow, claws pale horny.

**Measurements.** Total length about 225 mm.; wing 115 to 124 mm.; tail 74 to 76 mm.; tarsus about 36 to 37 mm.; culmen 27 to 29 mm.

**Young birds** are much paler and browner and the breast is streaked or smeared with vinaceous brown.

**Distribution.** Bhutan Duars, Assam, Eastern Bengal, S. Chin Hills, Chittagong and Akyab.

**Nidification.** The Pied Myna breeds principally in April, May and June, but in Dacca I found eggs laid as early as March 15th and as late as September 3rd. They often have two broods and sometimes three in the year. The nests are huge, domed affairs of sticks, roots, grass, leaves, rags, etc. lined with soft material of any kind or with feathers. They are very large compared with the size of the bird, sometimes measuring as much as two feet by eighteen inches and often over eighteen or fifteen inches. The entrance is near the top but there is no attempt to finish this off, the stray ends of material sticking out in every direction. They may be placed at any height from five to fifty feet from the ground and there is no attempt at concealment.

One hundred eggs average 28·2 × 20·8 mm. They are, of course, blue like all other Mynas' eggs and have a fair gloss, typically they are rather broad ovals rather compressed towards the smaller end. It occasionally breeds in regular colonies and often two or three nests may be seen in one large tree.

**Habits.** Very much the same as in the genera *Acridotheres* and *Æthiopsar* but, perhaps, less entirely a ground feeder than the former genus. It is both frugivorous and insectivorous and, though grasshoppers probably form its staple diet, it devours a good deal of ripe grain.

## (1005) Sturnopastor capensis dehræ.

THE PUNJAB PIED MYNA.

*Sturnopastor capensis dehræ* Stuart Baker, Bull. B. O. C., xlv, p. 103 (1925) (Dehra Dun).
*Sturnopastor contra.* Blanf. & Oates, i, p. 542 (part).

**Vernacular names.** *Ablak maina* (Hind.); *Venda gorinka* (Tel.).

**Description.** Similar to the preceding race but paler and less richly coloured both above and below.

**Colours of soft parts** and **Measurements** as in the typical form.

**Distribution.** South India, East of a line drawn from Umballa to Hyderabad in the Deccan and Masulipatam; as far East as Western Bengal, Bihar and Orissa, but not into Eastern Bengal and Assam.

**Nidification** and **Habits.** Not in any way distinguishable from those of the last bird.

## (1006) Sturnopastor capensis superciliaris.

THE BURMESE PIED MYNA.

*Sturnopastor superciliaris* Blyth, J. A. S. B., xxxii, p. 77 (1863) (Burma, Rangoon); Blanf. & Oates, i, p. 543.

**Vernacular names.** *Zayet* (Burma).

**Description.** Differs from the Indian Pied Myna in having the forehead and anterior crown streaked with white, a broad white supercilium to the ear-coverts and in having the streaks on the neck and shoulders absent or obsolete. The back is also paler, more brown, less black.

**Colours of soft parts** as in the preceding bird.

**Measurements** as in *S. c. capensis*.

**Distribution.** Manipur, Northern Chin Hills, Kachin Hills, Shan States, Eastern Burma to Tenasserim; Western Burma South of Arakan. Not Assam or Cachar. Birds from the extreme South of Tenasserim are very dark and are intermediate between this and the next race, whilst the few birds I have seen from Eastern Tenasserim must be referred to that subspecies.

**Nidification** and **Habits.** Not in any way different from the two preceding races.

## (1007) Sturnopastor capensis floweri.

THE SIAMESE PIED MYNA.

*Sturnopastor floweri* Sharpe, Bull. B. O. C., vii, p. 17 (1897) (Pachim, West Central Siam).

**Vernacular names.** *Noh-king-krong-lek* (Siam).

**Description.** Similar to *S. c. superciliaris* but with the upper parts very dark, the back practically black.

**Colours of soft parts** and **Measurements** as in the preceding bird.

**Distribution.** Southern Siam and the extreme East and, possibly, South of Tenasserim. In Northern Siam, according to Gyldenstolpe, the form found is *superciliaris*.

**Nidification.** Messrs. Williamson and Herbert obtained this Myna breeding in Siam round about Samkok and Bangkok from March to July. Twenty eggs average 27·1 × 20·2 mm. Mr. Herbert found this bird breeding in company with *Gracupica nigricollis* near Samkok on trees standing in rice-cultivation.

**Habits.** Those of the genus.

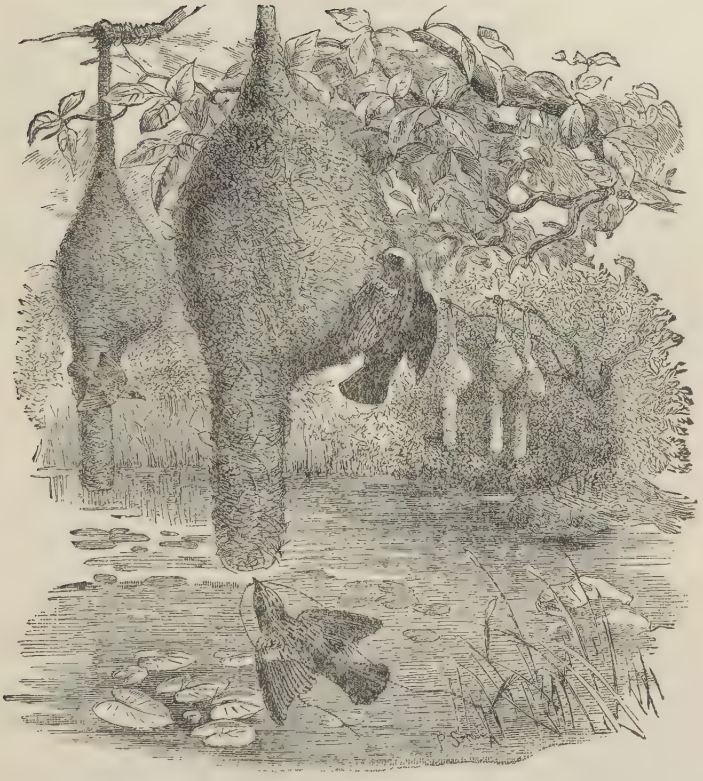


Fig. 19.—*Ploceus philippinus*.

## Family PLOCEIDÆ.

The intrinsic muscles of the syrinx fixed to the ends of the bronchial semi-rings; the edges of both mandibles smooth; the hinder part of the tarsus longitudinally bilaminated, the laminæ entire and smooth; wing with ten primaries, the first, in our Indian genera, always small; nostrils pierced within, or close to, the line of forehead; the nostril nearer the culmen than the commissure; bill conical and entire, the notch being absent or obsolete.

Considerable discussion has arisen in recent years as to the constitution of the families *Ploceidæ* and *Fringillidæ* and as to the position in them which certain genera, notably *Passer*, should be given. This genus is undoubtedly in many ways close to *Ploceus* both in general characteristics, colour, pattern of colour and in habits. On the other hand it has no visible signs of a tenth primary, a characteristic which satisfactorily separates it from all

our Indian *Ploceidæ*. Again, Sushkin (Bull. B. O. C., xlv, p. 36) has shown that in certain respects *Montifringilla* belongs to the Passerine group, whilst *Fringilauda* is a truly Fringilline form. Chapin (Bull. Am. Mus. Nat. Hist. xxxvii, pp. 243–280, 1917) uses as a primary characteristic the mouth-markings of the young but the conclusions he draws from this, among other characteristics, do not affect the position of any of the genera of our Indian *Ploceidæ*. More research work on a wider scale may show that the *Ploceidæ* and *Fringillidæ* should be combined in one family, divided into groups or subfamilies *Ploceinæ*, *Estrildinæ* (*Viduinæ*, Oates), *Passerinæ* and *Fringillinæ*. At present it seems to me that it is unsafe to base alterations in classification on characters which may prove to be unsatisfactory when more material has been examined. I therefore retain the two families *Ploceidæ* and *Fringillidæ* as defined by Oates.

*Key to Subfamilies.*

A. First primary long, much exceeding the greater wing-coverts. A partial Spring moult .. ..... *Ploceinæ*, p. 66.
B. First primary minute, never exceeding the greater wing-coverts. No Spring moult .. *Estrildinæ*,* p. 77.

## Subfamily PLOCEINÆ.

This Subfamily contains a very large number of African Weaver-birds and four species found within our Indian Empire.

The males have a complete Autumn and a partial Spring moult when they acquire a breeding plumage. The sexes are dissimilar in Summer.

In general appearance they are very Finch-like but they all have ten primaries and they are all sedentary in their habits.

*Key to Genera.*

A. Bill longer than high; no nuchal hairs; difference between length of wing and length of tail more than length of tarsus ..... PLOCEUS, p. 66.
B. Bill equal in length and depth; nuchal hairs present; difference between length of wing and length of tail much less than length of tarsus ..... PLOCEËLLA, p. 75.

### Genus PLOCEUS.

*Ploceus* Cuvier, Règne Anim., i, p. 363 (1817).

Type, *P. baya* (=*philippinus*).

In *Ploceus* the bill is thick with the culmen curved and in length considerably more than in depth at the base; the wing is

* Chapin, in *loc. cit.*, shows that the name *Estrildinæ* is preferable to *Viduinæ*.

of moderate length with the first primary large, about equal in length to the tarsus; the tail of twelve feathers is short and slightly rounded; the tarsus is strong with claws of considerable length.

The male has a partial or perhaps a complete moult in spring and acquires a yellow crown, which it again loses in autumn.

*Key to Species.*

A. Crown of head yellow. (Breeding males.)
  *a*. Breast yellow.
    *a'*. Chin and throat dark brown ..... *P. philippinus*, p. 67.
    *b'*. Chin and throat golden yellow .... *P. megarhynchus*, p. 69.
  *b*. Breast fulvous ..... *P. passerinus*, p. 70.
  *c*. Breast black, or black with fulvous fringes to the feathers ..... *P. benghalensis*, p. 72.
  *d*. Breast fulvous, boldly streaked with black..... *P. manyar*, p. 73.
B. Crown brown. (Males in Winter and all females.)
  *e*. Lower plumage pale fulvous.
    *c'*. Smaller, wing generally under 76 mm. *P. philippinus*, p. 67. / *P. passerinus*, p. 70.
    *d'*. Larger, wing over 76 mm. ..... *P. megarhynchus*, p. 69.
  *f*. Breast all black, or lightly fringed with fulvous ..... *P. benghalensis*, p. 72.
  *g*. Breast fulvous, boldly streaked with black ..... *P. manyar*, p. 73.

## (1008) **Ploceus philippinus.**

THE BAYA.

*Loxia philippina* Linn., Syst. Nat., 12th ed., i, p. 305 (1766) (Ceylon, *Harteri*).
*Ploceus baya*. Blanf. & Oates, ii, p. 175.

**Vernacular names.** *Baya* (Hind.); *Chindora* (Hind. in Beng.); *Bawi*, *Talbabi* (Beng.); *Parsupu Pitta* (Tel.); *Manja kuravi* (Tam.); *Thuckenam-kuruvi* (Tam. in Ceyl.); *Tatta-kurula*, *Wada-kurulla* (Cing.).

**Description.** Whole crown and nape golden yellow; back and scapulars blackish brown, margined with yellow; lower back and rump fulvous-brown, obsoletely streaked with brown and faintly edged with golden fulvous; upper tail-coverts and tail brown edged with greenish; wing-coverts and quills brown edged with golden fulvous and sub-edged with pale fulvous; a narrow line across the forehead, lores, round the eye, chin, throat and sides of head dark brown; breast and sides of the neck golden yellow; abdomen, posterior flanks and under tail-coverts pale fulvous, sometimes faintly washed with yellow.

**Colours of soft parts.** Iris brown; bill dark horny-brown; legs and feet flesh-colour or pale tan-brown.

**Measurements.** Total length about 150 mm.; wing 68 to 75 mm.; tail 45 to 50 mm.; tarsus about 19 to 20 mm.; culmen 16 to 18 mm.

**Male in Winter and Female.** Above, the yellow entirely disappears and the plumage is fulvous-brown, broadly streaked with blackish brown on the back and scapulars, obsoletely so on the rump and upper tail-coverts; the greater coverts and secondaries are boldly edged with fulvous and the primaries narrowly edged with greenish yellow and sub-edged fulvous; below, the plumage is fulvous, deepest on the breast and flanks, the latter with faint shaft-lines of black.

**Colours of soft parts.** Bill horny-yellow, a little darker on culmen and at tip.

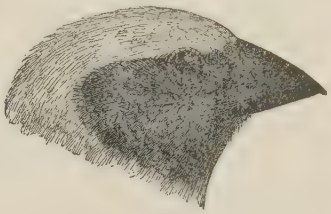


Fig. 20.—Head of *P. philippinus*.

**Distribution.** Ceylon, the whole of India from the extreme South to Sind in the West, to the Sub-Himalayas in the North and East to Western Bengal, Bihar and the Sikkim Terai. In Nepal this bird meets another species "*passerinus*," of which Reichenow has made the type-locality "Nepal." The majority of the specimens from Nepal are obviously *passerinus*, large birds with no trace of yellow on the breast in the breeding-season. On the other hand, many specimens have some yellow on the breast and one or two have it as extensively as any *philippinus*. These specimens may be intermediate forms where two subspecies meet, or they may be the result of interbreeding of two species. For the present I retain *philippinus* and *passerinus* as species.

**Nidification.** The Baya-bird commences to breed as soon as the rains have come and Nature is green and fresh enough to supply her with green and pliant material for her nest. Where rain is constant and material ever at hand these birds breed in March and April but over the greater part of its area July and August are the two principal breeding months. It breeds in company, anything from a dozen pairs to nearly two hundred building their wonderful hanging nests on some clump of bamboos, a cluster of palms or some other suitable tree or trees. The nests are so well known as hardly to require description. In shape they are long retorts, or pear-shaped, one *side* of the pear being prolonged downwards in a tunnel which forms the entrance to the nest. In most cases the material used consists of long strips of grass, grass bark, plantain leaf or, less often, coir or other fibre. The

weaving of the nest is the work of both sexes and it is wonderfully compact and well put together, standing almost any rain-storm, whilst so well is it attached to its support that it takes a hurricane to tear it away. The tubular entrance varies greatly in length. Sometimes it is a few inches only, whilst at other times it may be as much as two or even three feet. Inside the nest the bird always places a few pellets of mud, each about the size of a marble. These may be intended to weight and steady the nest or, as the natives declare, for the sitting hen to stick with fire-flies to light up her abode. Very often a building-site is selected growing over a piece of water, probably on account of the extra protection so afforded. Over Southern India two eggs seem to be the number most often laid and in Northern India three or four. Even in Ceylon, however, five eggs have been taken by Mr. W. W. A. Phillips and further North by others. I have seen only one clutch of six and this might possibly have been the product of two females. The eggs are pure white and the texture is very hard and stout. One hundred eggs average 20·3 × 14·5 mm.: maxima 22·3 × 15·0 and 21·9 × 15·2 mm.; minima 18·9 × 13·7 mm.

**Habits.** The Baya is essentially a bird of open country, cultivated fields, gardens and orchards but at the same time it likes well-wooded country, not frequenting the drier, more barren tracts of the Deccan, Rajputana, etc. It is not intolerant of human beings and human habitations, sometimes building in gardens quite close to houses though it does not build in verandahs etc. as the Burmese Baya sometimes does. It is a cheerful, not to say noisy, little bird and all day long never ceases its conversational chatter, but it has no real song, though the cock will keep up a prolonged pleasant twittering during the courting time. It is principally a seed-eater but also consumes almost any kind of ripe grain and, in captivity, eats fruit and boiled rice and millet. It is a very favourite cage-bird, constantly on the move, very hardy and one of the most intelligent of pets.

## (1009) Ploceus megarhynchus.

FINN'S BAYA.

*Ploceus megarhynchus* Hume, Ibis, 1869, p. 406 (Kaladingee, Kumaon Terai); Blanf. & Oates, ii, p. 177 (part).

**Vernacular names.** None recorded.

**Description.—Adult male in Summer.** "General colour bright yellow (brightest on head and dull and impure on rump), with the following exceptions:—lores, round the eyes below, and ear-coverts dark brown; upper back, wings and tail blackish brown, each feather edged, entirely or externally, with light brown, on the uppermost part of the back with yellow; under wing-coverts dirty white" (*Finn*).

**Colours of soft parts.** "Iris bright light brown; bill black, fleshy-white at base; feet dark brownish fleshy, claws blackish horny" (*Finn*).

**Measurements.** A decidedly larger bird than *P. philippinus*. Wing 76 to 82 mm.; culmen 18 to 19 mm.; tarsus about 23 mm.

**Winter plumage.** Similar to the preceding bird but richer and more rufous above and deeper rufous-fulvous below.

**Female** in the breeding season has the head less streaked than the preceding bird and tinged with rufous-yellow; below, the chin, throat, breast and flanks are tinged with yellow. In Winter they seem to differ but little from *P. philippinus* except in their larger size and bigger bills.

**Distribution.** Hume's birds were obtained in the Kuman Terai but since then nothing more has been learnt about this Baya's habitat until Mr. H. V. O'Donel discovered them breeding in the Buxar Duars and obtained a series of skins which he presented to the Bombay Nat. Hist. Society. It seems therefore that this species is a form inhabiting the lower Terai from the Plains up to some 3,000 or 4,000 feet.

**Nidification.** The nest is described by O'Donel as a round untidy structure quite unlike the nests of *P. philippinus*, which is a common breeding bird in the same district.

## Ploceus passerinus.

*Key to Subspecies.*

A. Larger. Wing from 69 to 78 mm., generally over 72 mm. ..... *P. p. passerinus*, p. 70.
B. Smaller. Wing from 64 to 72 mm., generally under 70 mm. ..... *P. p. infortunatus*, p. 71.

### (1010) Ploceus passerinus passerinus.

THE EASTERN BAYA.

*Ploceus passerinus* Reichenow, Zool. Jahrb. i, 1886, p. 156 (Nepal).
*Ploceus megarhynchus.* Blanf. & Oates, ii, p. 176 (part).

**Vernacular names.** *Tookra*, *Baya-Sorai* (Assam); *Dao-tiri-bhai* (Cachari).

**Description.** Forehead, crown and nape golden yellow; hind neck also suffused with this colour; upper plumage blackish brown, the feathers edged with fulvous-rufous and the dark centres almost obsolete on the rump and upper tail-coverts; wing-coverts, quills and tail deep brown edged with fulvous-rufous; lower plumage tawny fulvous, darkest on breast and flanks and vinous grey on skin and throat; sides of head vinous brown.

**Colours of soft parts.** Iris dark hazel, eyelid fleshy-grey; bill black, the inside of the mouth flesh-colour; legs and feet flesh-colour, the claws a little darker.

**Measurements.** Total length about 150 mm.; wing 69 to 78 mm., very few being below 72 mm.; tail 46 to 50 mm.; tarsus about 20 mm.; culmen 16 to 18 mm.

**Male in Summer and all Females.** Very similar to *P. philippinus* but generally darker and more richly coloured, especially below. The bill is pale horny in Winter.

**Young birds** are streaked below, these streaks being retained to some extent in the first Summer plumage.

**Distribution.** Sub-Himalayas from Nepal and possibly Garhwal, to Assam, Eastern Bengal, Chin and Kachin Hills, Shan States and Burma North of Thaunghoo and Karenni.

Hartert includes all Burmese Birds in the next race "*infortunatus*." The differences between the two forms are practically only those of measurements and the North Burmese birds seem nearer to those from Nepal than to those from the Malay States.

One hundred and six birds from the Malay States and Peninsular Burma and Siam have wings between 64 and 72 mm., very few being as much as 70 mm. From Central and North Burma 42 specimens vary between 69 and 76 mm., whilst from Bengal, Assam, Sikkim and Nepal 118 specimens vary between 70 and 78 mm., very few either in Northern Burma or the more Western regions being below 72 mm.

**Nidification.** Exactly like that of *Ploceus philippinus* but this is an even more familiar bird, often breeding in verandahs, attaching its nest to trellis-work or to the thatch of the roof. The eggs number two to five, perhaps most often three. One hundred eggs average 21·6 × 14·7 mm.: maxima **23·1** × 14·9 and 27·1 × **16·1** mm.; minima **20·2** × 14·7 mm. and 21·3 × **14·2** mm.

**Habits.** Similar to those of *P. philippinus*.

## (1011) Ploceus passerinus infortunatus.

THE MALAY BAYA.

*Ploceus passerinus infortunatus* Hartert, Nov. Zool., ix, p. 577 (1902) (Sungei Lebeh, Malay Peninsula).
*Ploceus megarhynchus.* Blanf. & Oates, ii, p. 176 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *P. p. passerinus* but smaller and somewhat darker and more richly coloured.

**Colours of soft parts** as in *P. p. passerinus*.

**Measurements.** A smaller bird than the preceding, wing from 64 to 72 mm., only one or two specimens in over one hundred exceeding 70 mm.

**Distribution.** Siam, Burma from Thaunghoo and Karenni Southwards, the Malay States, Sumatra and Nias. There are three specimens in the British Museum recorded from Java but these, as Hartert has shown, have probably the wrong locality.

**Nidification.** Quite similar to that of the preceding bird. Thirty eggs average 20·1 × 14·2 mm.: maxima **21·9** × 14·9 and 20·6 × **15·2** mm.

The breeding season commences in April and Messrs. Williamson and Herbert found eggs from that month up to the 6th of September in and about Bangkok. Three or four seems to be the full complement.

**Habits.** The same as those of the preceding Weaver-Birds.

## (1012) Ploceus benghalensis.

THE BLACK-THROATED WEAVER-BIRD.

*Loxia benghalensis* Linn., Syst. Nat., 10th ed. i, p. 175 (1758) (Bengal)
*Ploceus bengalensis*. Blanf. & Oates, ii, p. 177.

**Vernacular names.** *Sarbo Baya* (Hind.); *Shor Baya, Kantawala Baya* (Beng.).

**Description.—Adult male in Summer.** Forehead and crown glistening golden-yellow, surrounded by a black line from the eye round the nape; back and scapulars dark brown, obsoletely edged paler; rump and upper tail-coverts paler brown; tail brown; wing-feathers dark brown, edged with fulvous; sides of head and lores brown; chin and throat whitish; in a few specimens, perhaps very old, the sides of the head and throat become practically pure white. Breast black, remainder of lower plumage dull pale fulvous, darker and streaked with brown on the flanks and next the breast.

**Colours of soft parts.** Iris light brown to bright hazel; bill pearly white or pale bluish plumbeous; legs and feet pale flesh-colour or yellowish fleshy.

**Measurements.** Total length about 140 mm.; wing 67 to 75 mm.; tail 42 to 47 mm.; tarsus 19 to 20 mm.; bill 14 to 16 mm.

**Male in Winter.** Crown and forehead dark brown, obscurely margined paler; a narrow supercilium from the forehead to ear-coverts golden yellow; upper parts and wings dark brown, boldly edged with fulvous-rufous; a moustachial streak dark brown; above this a yellow patch, a second paler patch above the eye and a third bright patch on the sides of the neck; chin and throat pale yellow; breast dark fulvous, the black bases showing through more or less; the fulvous fringes to these feathers soon wear away leaving the breast almost black by January or February.

**Female.** Similar to the male in Winter but with the yellow parts less vivid and the breast never so black.

**Young birds** are more distinctly streaked below and have no yellow on the head.

**Distribution.** Northern India from Sind to Eastern Assam, Cachar, Sylhet and Manipur. General Betham found it breeding in Baroda. It is common in Bengal and Bihar; very common in Eastern Bengal to Sylhet but less so in Cachar; Inglis obtained it breeding in Bihar. It is not found in Burma.

**Nidification.** The Black-throated Weaver-Bird breeds wherever

found, except, perhaps, in the driest areas. A. M. Primrose records it as breeding in some numbers in the Longview Tea Estate, near Kurseong, about 4,000 feet elevation but it is essentially a bird of the plains and lower hills. It breeds in small, scattered colonies; often there are a very large number of birds in one plain of elephant grass, thatching grass or ekra, but each colony seldom numbers as many as twenty pairs and usually only four or five to about a dozen. The nest is like that of *Ploceus philippinus* without the long neck and often with only a very short entrance tube, though I have seen some nearly three feet long. They prefer to build in grass or reeds of some kind, weaving the blades well into the top and sides of the nest but they occasionally build in bushes when some approach to a neck may be made. The eggs number three or four, rarely five and are not distinguishable from the eggs of other Indian Weaver-Birds. One hundred eggs average 20·3 × 15·0 mm.: maxima **22·4** × 14·6 and 21·8 × **15·3** mm.; minima **18·1** × **13·5** mm.

They breed from May to September, the time varying according to the commencement of the rains.

**Habits.** Those of the other Weaver-Birds. This species, however, keeps much to the vast seas of grass found over Northern India which are more or less swamps throughout the rains. It is not found in very dry areas, as a rule, and does not haunt trees or even well-wooded country.

## Ploceus manyar.

*Fringilla manyar* Horsf., Trans. Linn. Soc., xiii, p. 160 (1820).

Type-locality: Java.

The race from Java differs from all the other geographical races in having a highly-developed rufous breast and from all but the Burmese form in its more rufous, richly-coloured upper parts.

*Key to Subspecies.*

A. Upper parts not strikingly rufescent.
  *a.* Darker, the striations on the lower plumage very black and bold ..... *P. m. flaviceps*, p. 73.
  *b.* Paler, striations narrower and less deeply black ..... *P. m. striatus*, p. 74.
B. Upper parts strikingly rufescent ..... *P. m. peguensis*, p. 75.

## (1013) Ploceus manyar flaviceps.

THE MADRAS STREAKED WEAVER-BIRD.

*Ploceus flaviceps* Less., Traité d'Orn., 1831, p. 435 (Pondicherry).
*Ploceus manyar.* Blanf. & Oates, ii, p. 179 (part).

**Vernacular names.** *Bamani Baya* (Hind. in Deccan).

**Description.—Adult male in Summer.** Whole crown golden-yellow; lores, sides of head, chin and throat ashy-black; feathers

of upper plumage dark blackish brown edged with fulvous, the narrow edgings on the tail and wing being more yellow; lower plumage fulvous, the upper breast with very broad black centres, these decreasing on the lower breast and flanks to narrow black lines; centre of abdomen and under tail-coverts immaculate.

**Colours of soft parts.** Iris brown; bill almost black tinged with bluish plumbeous at the base; legs and feet fleshy or tan-yellow; claws a little darker.

**Measurements.** Total length about 140 mm.; wing 66 to 72 mm.; tail 41 to 44 mm.; tarsus 21 to 22 mm.; culmen about 16 to 17 mm.

**Male in Winter and Female.** Crown black, the feathers edged with fulvous; a moustachial streak, supercilium and patch behind the ear-coverts and sides of head streaked brown and fulvous; chin and throat white, grey or fulvous streaked with black. The bill is pale horny.

**Young** are like the female but more rufous with fewer or no striæ below and much broader edges to the feathers above.

**Distribution.** Ceylon and South India as far North as Bombay, the Deccan and South Orissa.

**Nidification.** In Ceylon this Weaver-Bird breeds principally in February and March, sometimes a second time in August and September. In India it breeds as soon as the rains have commenced, *i. e.* from the middle of June to the end of September. The nest is like that of the preceding species and is nearly always built in long grass or reeds standing in mud or water. The colonies are generally small, rarely they are large and number as much as forty or fifty pairs. The eggs number two or three, two being the usual number in Ceylon and Travancore They cannot be distinguished from others of the genus *Ploceus*. Fifty eggs average 20·3 × 14·3 mm.: maxima **21·6 × 15·0** and 20·1 × **15·1** mm.; minima **19·1 × 13·9** and 19·2 × **13·1** mm.

**Habits.** Those of the preceding species.

## (1014) Ploceus manyar striatus.

THE SIND STRIATED WEAVER-BIRD.

*Euplectes striatus* Blyth, J. A. S. B., xi, p. 873 (1842) (Sind).
*Ploceus manyar.* Blanf. & Oates, ii, p. 179 (part).

**Vernacular names.** None recorded.

**Description.** Sex for sex similar to the preceding bird but paler with finer striæ below; the black in the male is confined to the throat and does not extend on to the upper breast.

**Colours of soft parts** as in *P. m. flaviceps.*

**Measurements** much the same as those in *P. m. flaviceps.*

**Distribution.** Sind, Punjab and North-West Frontier.

**Nidification** and **Habits.** Not distinguishable from those of the

other races of this species. In Sind, owing probably to the suitable tracts of reed-covered swamps being more restricted, this Weaver often breeds in very large colonies. Hume mentions finding 100 nests in one small island not 20 yards in diameter.

### (1015) Ploceus manyar peguensis.

THE BURMESE STRIATED WEAVER-BIRD.

*Ploceus manyar peguensis* Stuart Baker, Bull. B. O. C., xlv, p. 58 (1925) (Pegu).
*Ploceus manyar.* Blanf. & Oates, ii, p. 179 (part).

**Vernacular names.** *Telia Baya* (Beng.); *Bawoyi* (in Rungpore).

**Description.** Sex for sex similar to *P. m. flaviceps* but darker and more richly coloured; above the edges to the feathers are rufous, making this part of the plumage generally appear much more rufous than in any other race. Below also it is more fulvous and much more heavily streaked but, at the same time, it does not possess the well-marked rufescent breast of *P. m. manyar* from Java.

**Colours of soft parts** and **Measurements** as in the other races.

**Distribution.** Himalayan Terai from Garwhal to Eastern Assam; Northern Indian Plains in suitable humid tracts throughout Bengal and Northern Orissa; Burma, South to Tavoy; Shan States, Siam, Yunnan and Annam.

**Nidification.** This race breeds from May to July over Northern India and from May to September in Siam and Lower Burma. Three to five eggs are laid and one hundred average 20·6 × 14·9 mm.: maxima 22·8 × 15·9 mm.; minima 18·4 × 13·7 mm. The nests of this species differ from those of the Black-throated Weaver-Bird in having fewer supports, more especially at the sides and less of the growing material is woven into the nests themselves; they are in fact more truly hanging nests although they have no slender neck as in *Ploceus philippinus* and *P. passerinus*.

**Habits.** Those of the species.

## Genus PLOCEËLLA.

*Ploceëlla* Oates in Hume's Nests and Eggs Ind. Birds, p. 443 (1873).

Type, *Ploceëlla javanensis=chrysæus* Hume.

The genus *Ploceëlla* differs from *Ploceus* in having a smaller, shorter bill which is about equal in length and breadth; the nape is furnished with a few short hairs and the tail is longer, broader and more rounded.

This genus more nearly approaches the African Weaver-Birds than does *Ploceus* and, like many of them, lays eggs of various colours.

There is but one species which has a summer and winter plumage varying much as in the males of the preceding genus.

## (1016) Ploceëlla chrysæa.

THE GOLDEN WEAVER-BIRD.

*Ploceus chrysæus* Hume, Str. Feath., vi, p. 399, footnote (1878) (Tenasserim).
*Ploceus javanensis.* Blanf. & Oates, ii, p. 180.

**Vernacular names.** *Nok-a-chap-yippon* (Siam).

**Description.—Adult male in Summer.** Lores, cheeks, ear-coverts, chin and throat velvety black; a narrow broken moustachial streak, crown, neck and lower plumage bright golden yellow, deepest on the crown and upper breast; rump and upper tail-coverts paler yellow; back and wing-coverts blackish brown, each feather broadly margined with yellow; wing-quills black edged with yellowish white; tail brown edged and narrowly tipped with yellow.

**Colours of soft parts.** Iris brown, the eyelids greyish; bill black, the gonys often paler and horny or plumbeous horny; legs and feet yellow-tan to fleshy, claws darker.

**Measurements.** Total length about 150 mm.; wing 65 to 69 mm.; tail 49 to 52 mm.; tarsus about 20 mm.; culmen 15 to 16 mm.

**Male in Winter and Female.** A fairly distinct supercilium buff; crown fulvous-brown streaked with blackish like the back; rump, upper tail-coverts and tail dull rufous-brown, the latter edged with fulvous instead of yellow; lower plumage tawny-buff, richest on throat and breast, palest on abdomen and under tail-coverts. The bill is light fleshy-brown.

**Young** like the female but more rufous.

**Distribution.** Upper Burma and Pegu between the Irrawaddy and Sittoung Rivers from Mandalay down to the Gulf of Martaban; Northern Tenasserim; Siam: Cochin China, Java.

**Nidification.** The Golden Weaver-Bird breeds in Lower Burma and Siam from July to September, occasionally in June. It builds two types of nests; the one most commonly made is a spherical affair of grasses, bamboo leaves, strips of grass, bark or plantain leaves, etc. well woven and fixed to upright stems of grasses and reeds or bush twigs. The entrance is on one side and has no tube and the whole effect of the nest is very untidy. The second and less common type of nest is like that of the Striated Weaver, though it never has the tube more than an inch or two long, and is attached to the ends of branches of bushes or tips of reeds from which it hangs. Mr. E. G. Herbert and others have drawn attention to the way the Golden Weaver selects either very thorny and inaccessible sites for its nests, or else such as are in close proximity to hornets' nests or to colonies of red ants.

Two is the usual complement of eggs laid, sometimes three, but rarely four. Pure white eggs are exceptional and they range through all shades of pale grey, pale greenish grey, dove-colour, pale purplish-stone, mauve-grey, lilac-grey or brownish. Most

eggs are practically uniform, the stipplings of darker colour being so fine as not to show; in others the freckles are more definite and in a few there may be a well-marked ring of darker spots or a few hair-like lines and scriggles. One hundred eggs average 18·2×13·8 mm.: maxima **20·2×14·1** and 19·0×**14·8** mm.; minima **16·1×12·3** mm.

**Habits.** Very like those of the birds of the genus *Ploceus*. They are familiar birds, often breeding in close proximity to villages and houses, where there are suitable ponds or patches of swamp with reeds and bushes. They are birds of the open grass-lands and wide areas of shallow reed- and ekra-covered water. They have no song but a constant conversational chatter which is pleasant and soft and they are very gregarious in their habits throughout the year. Their principal food is grass seed, but they will eat any kind of grain, most fruits and are said also to eat many kinds of insects, more especially during the breeding-season.

## Subfamily ESTRILDINÆ.

The *Estrildinæ*, or Munias, differ from the true Weaver-Birds in having a very small first primary and in having no Spring moult. The sexes are generally alike but in *Stictospiza* they vary slightly and in *Amandava* very considerably. The wing is rather short with a small first primary and with the next three subequal. The tail varies considerably in shape.

*Key to Genera.*

A. Central tail-feathers narrow and pointed.
  *a*. Tail rounded and very slightly graduated; crown black contrasting with back ..... MUNIA, p. 77.
  *b*. Tail wedge-shaped and much graduated; crown similar in colour to the back.
    *a'*. Colours brown and white ..... UROLONCHA, p. 81.
    *b'*. Colours green and crimson ..... ERYTHRURA, p. 93.
B. Central tail-feathers broad and rounded.
  *c*. Plumage with much green ..... STICTOSPIZA, p. 94.
  *d*. Plumage with much red ..... AMANDAVA, p. 95.

### Genus MUNIA.

*Munia* Hodgs., As. Res., xix, p. 153, 1836.

Type, *Munia atricapilla* Vieill.

The genus *Munia* contains two Indian species which are characterized by a short and rounded tail, having the middle pair of feathers very narrow and pointed and much shorter than the wing. The sexes are alike.

*Key to Species.*

A. Lower breast and sides of body white..... *M. malacca*, p. 78.
B. Lower breast and sides of body chestnut.... *M. atricapilla*, p. 80.

## Munia malacca.

*Loxia malacca* Linn., Syst. Nat., 12th ed. i, p. 302 (1766) (Malacca, *in errore*; Belgaum).

Linnæus's name *malacca* is in part founded on his *chinensis* of the 10th ed., in which he refers to plates in Albin and Edwards which depict, the former the Black-headed Munia of India and the latter the Black-headed Munia of Malacca etc. Linnæus in this edition describes characters which refer equally well to either species, leaving out all reference to the chest and sides of the body. The name is indeterminable and cannot be used. In the 12th ed., however, although he still refers to Albin and Edwards he adds to his references another plate of Edwards's (t. 155) and also refers to Brisson, whilst in his description he definitely states that the breast and sides of the body are white. Unfortunately therefore, although *malacca* is a geographical misnomer, we must retain it as the name for the Southern Indian bird.

*Key to Subspecies.*

A. Upper parts paler, extent of black on abdomen greater ..... *M. m. malacca*, p. 78.
B. Upper parts darker, extent of black on abdomen less ..... *M. m. orientalis*, p. 79.

### (1017) Munia malacca malacca.

THE BLACK-HEADED MUNIA.

*Loxia malacca* Linn., Syst. Nat., 12th ed. i. p. 302 (1766) (Malacca, *in errore*) (Ceylon).
*Munia malacca.* Blanf. & Oates, ii, p. 182.

**Vernacular names.** *Nakal-nor* (Hind.); *Nalla jinawayi* (Tel.); *Wé-kurulla* (Ceyl.); *Tinna kuravi* (Tam.).

**Description.** Whole head, neck and upper breast, middle of the abdomen, vent, thighs and under tail-coverts black; back, rump and wing-coverts pale chestnut; lower rump, upper tail-coverts and tail glistening maroon; remainder of underparts white.

**Colours of soft parts.** Iris dark brown to crimson-brown; bill bluish or lavender-plumbeous; legs and feet plumbeous.

**Measurements.** Total length about 120 mm.; wing 55 to 61 mm.; tail 35 to 39 mm.; culmen about 17 to 19 mm.

**The Young bird** has the whole upper plumage rufous-brown, the tail darker; whole lower plumage pale fulvous-buff.

**Distribution.** Ceylon, Travancore and Malabar Coast and then running inland on the North to Belgaum. This appears to be a coastal form except in Belgaum. Unfortunately there is little material from Travancore, Malabar, etc. available for comparison and the position of these specimens is doubtful, though they seem to be much nearer the pale Belgaum birds than to the richly-

coloured Madras form. North it occurs in Ratnagiri but how much further is not yet definitely recorded.

**Nidification.** The Black-headed Munia breeds principally after the rains have begun in July and August but nests with eggs, young, or empty may be seen practically throughout the year over the whole of its range. The nest is a large round ball with the entrance near the top and is made of rather large, wide strips of grass and reed blades, sometimes with and sometimes without a lining of grass flowers. Like all Munias' nests the construction is rather crude and the nest very untidy, especially at the entrance. Sugar-cane fields are a very favourite site, but the birds will build in long grass, bushes, or any convenient vegetation. The eggs, four to seven in number, are white, like all other Indian species of the family, fifty average 16·3 × 11·5 mm.: maxima **17·1** × 11·5 and 16·5 × **12·4** mm.; minima **15·5** × 10·8 and 15·6 × **10·6** mm.

Fig. 21.—Tail of *M. m. malacca.*

Fig. 22.—Head of *M. m. malacca.*

**Habits.** This little Munia is very gregarious, often being found in flocks of forty or fifty birds, though more often in such as contain one or two families only. They frequent grass-lands, grain crops and are fond of sugar-cane fields and other tall crops standing in swampy ground. Their diet is exclusively grain and seed and when the rice crops are ripe they feed largely on this, at other times principally on grass-seed. The note is a very pleasant chatter and though it is generally credited with having no song, the male, when breeding, has one which is extraordinarily sweet, uttered, so to speak, under its breath and hardly audible at five yards distance or less.

## (1018) **Munia malacca orientalis.**

THE MADRAS BLACK-HEADED MUNIA.

*Munia malacca orientalis* Stuart Baker, Bull. B. O. C., xlv, p. 58 (1925) (Madras).
*Munia malacca.* Blanf. & Oates, ii, p. 182 (part).

**Vernacular names** as in the preceding bird.

**Description.** Similar to *M. m. malacca* but darker and richer chestnut above and generally with less black below.

**Colours of soft parts** as in the preceding race.

**Measurements.** Wing 52 to 58 mm.

**Distribution.** The whole of Southern India North to the Central Provinces, East of Mysore, Coorg, Travancore and the Nilgiris, but not Travancore in the West, nor the Malabar Coast or Belgaum.

**Nidification** and **Habits.** Those of the preceding bird.

## Munia atricapilla.

*Key to Subspecies.*

A. Smaller, very little black on abdomen; wing 48 to 53 mm. ..... *M. a. atricapilla*, p. 80.
B. Larger, black on abdomen very prominent; wing 52 to 59 mm. ..... *M. a. rubronigra*, p. 81.

### (1019) Munia atricapilla atricapilla.

The Malay Chestnut-bellied Munia.

*Loxia atricapilla* Vieill., Ois. Chant., p. 84 (1805) (Les Grandes Indes).
*Munia atricapilla.* Blanf. & Oates, ii, p. 183.

**Vernacular names.** None recorded.

**Description.** Whole head, neck and upper breast deep black; lower rump and upper tail-coverts crimson-maroon, the latter tipped with shining gold; tail brown, the central feathers edged with gold; thighs, under tail-coverts, sometimes the centre of the abdomen dull chestnut-black or smoky-black; remainder of plumage chestnut. The upper back is sometimes washed with grey.

**Colours of soft parts.** Iris dark brown; bill pale bluish plumbeous; legs and feet darker plumbeous.

**Measurements.** Total length about 135 mm.; wing 48 to 53 mm.; tarsus 15·5 to 16·5 mm.; culmen about 10 to 11·5 mm.

**Young birds** are light fulvous-brown, darker on the head and pale buff or fulvous-buff below; sides of head, chin and throat greyish; some young birds are more tinged with chestnut than others.

**Distribution.** Southern Burma and Siam, from about the latitude of Rangoon and Samkok, the whole of the Malay Peninsula to Singapore.

**Nidification.** The Chestnut-bellied Munia breeds during May, June and July, building its nest in grass or reeds in swampy places. The nest is made of rather coarse strips of reed and grass blades, lined with finer stripes and is of the usual football shape. In this, as in many of the other Munias' nests, the entrance sometimes seems to be merely a hole forced through the top of

the nest after completion and, accordingly, difficult to find. The eggs number five to seven and forty average 17·1 × 11·9 mm.; maxima **17·8** × 11·4 and 17·0 × **12·2** mm.; minima **15·6** × 12·1 and 16·0 × **11·0** mm.

**Habits.** These Munias frequent, by preference, grass fields and reeds and bushes in swampy places away from villages, but Col. H. H. Harington found it breeding near Taungyi both in bushes near villages and in grass swamps well away from them. They are gregarious like all Munias and the family parties do not break up until the birds are ready to recommence breeding.

## (1020) **Munia atricapilla rubronigra.**

THE NORTHERN CHESTNUT-BELLIED MUNIA.

*Munia rubroniger* Hodgs., As. Res., xix, p. 153 (1836) (Nepal).
*Munia atricapilla.* Blanf. & Oates, ii, p. 183 (part).

**Vernacular names.** None recorded.

**Description.** Similar to the Malay Chestnut-bellied Munia but larger; the black on the belly well developed and much greater in extent; the upper parts are, perhaps, more richly chestnut and there is never any silvery edging to the feathers of the upper back.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 53 to 59 mm., generally about 55 mm.; culmen 11·5 to 13 mm.

**Distribution.** From Sambalpur, along the Sub-Himalayan Terai to E. Assam, Bihar and Bengal; Arakan; Chin and Kachin Hills; Yunnan, Shan States, Annam, Northern Siam to Samkok and Central Burma to Karenni etc.; Western China.

**Nidification.** Similar to that of the last bird but keeps more to bushes and to very high sites, often building quite high up in comparatively lofty trees. They breed almost all the year round but the majority from June to September, laying four to eight eggs. Fifty eggs average 16·3 × 11·7 mm.: maxima **17·8** × 11·9 and 17·0 × **12·2** mm.; minima **14·9** × **10·2** mm.

**Habits.** This bird ascends the Himalayas up to at least 4,000 feet, at which height I have obtained it in the Khasia and Cachar Hills. Although it seems to prefer the vicinity of villages and cultivation, I have seen it in swamps and grass fields far removed therefrom.

## Genus **UROLONCHA.**

*Uroloncha* Cab., Mus. Hein., Th. i, p. 173 (1850).

Type, *Uroloncha molucca* Linn.

The genus *Uroloncha* contains a large number of species, differing from *Munia* in their more graduated and proportionately

longer tails, the difference between the wing and the tail being less than the length of the tarsus.

In this genus the sexes are alike and the colour of the crown of the head is the same, or nearly the same, as that of the back.

*Key to Species.*

A. Rump white ..... *U. striata*, p. 83.
B. No white on rump.
  *a*. Shafts of feathers of upper plumage pale.
    *a'*. Upper tail-coverts black ..... *U. leucogastra*, p. 87.
    *b'*. Upper tail-coverts glistening fulvous or yellow.
      *a''*. Breast and flanks not squamated or barred..... *U. rufiventris*, p. 88.
      *b''*. Breast and flanks barred or squamated.
        $a^3$. Chin and throat black..... *U. kelaarti*, p. 89.
        $b^3$. Chin and throat chestnut ..... *U. punctulata*, p. 90.
  *b*. Shafts of feathers of upper plumage same colour as feathers ..... *U. malabarica*, p. 89.

## Uroloncha striata.

*Key to Subspecies.*

A. Abdomen plain white, unstreaked with brown.
  *a*. Fore neck and breast deep black.
    *a'*. Upper plumage with white shaft-lines. *U. s. striata*, p. 83.
    *b'*. Upper plumage with no white shaft-lines ..... *U. s. fumigata*, p. 83.
  *b*. Fore neck and breast chocolate-brown with pale edges..... *U. s. semistriata*, p. 84.
B Abdomen white, streaked with brown.
  *c*. Abdomen faintly streaked with brown... *U. s. acuticauda*, p. 84.
  *d*. Abdomen strongly streaked throughout with brown.
    *c'*. Breast-feathers brown, narrowly edged with fulvous-white ..... *U. s. subsquamicollis*, [p. 86.
    *d'*. Breast-feathers rufous-brown, broadly edged with bright fulvous ..... *U. s. squamicollis*, p. 86.

This interesting species is a good example of the difficulty of ignoring subspecies. Old writers admitted four full species, *striata*, *semistriata*, *fumigata* and *acuticauda* yet refused to recognize the difference shown in *U. s. squamicollis*, which differs from *acuticauda* almost exactly as, though to a greater extent than, *fumigata* does from *striata*.

## (1021) Urolonchа striata striata.

THE WHITE-BACKED MUNIA.

*Loxia striata* Linn., Syst. Nat., 12th ed. i p. 306 (1766) (Isle of Bourbon, *in errore*; Ceylon).
*Urolonchа striata.* Blanf. & Oates, ii, p. 185.

**Vernacular names.** *Shakari munia* (Beng.); *Wé-kurulla* (Ceylon); *Tinna kuravi* (Tam.).

**Description.** Forehead, anterior crown, face, chin, throat and breast deep velvety black; posterior crown, upper plumage and wing-coverts chocolate-brown with whitish shafts; quills and tail blackish chocolate; a broad band across the rump white; below from breast pure white; vent, thighs and under tail-coverts blackish chocolate; ear-coverts and sides of the neck chocolate-brown with buff shaft-stripes; under wing-coverts and axillaries white.

**Colours of soft parts.** Iris reddish brown; upper mandible almost black, the lower mandible bluish plumbeous; legs and feet greenish or plumbeous-horny.

**Measurements.** Total length about 115 mm.; wing 52 to 55 mm.; tail 38 to 40 mm.; tarsus 14 to 15 mm.; culmen about 10 to 11 mm.

**Young birds** are fulvous-brown above without any striations and below are pale fulvous with practically no indications of paler mesial streaks.

**Distribution.** Ceylon and India, North to Bombay, Sambalpur, Manbhum in Eastern Bengal and Orissa.

**Nidification.** In Ceylon Messrs. E. Wait and W. W. A. Phillips have taken or seen eggs in almost every month of the year but in Travancore the season apparently extends from June to September; in the Bombay Presidency Davidson found eggs up to November, whilst in Western Bengal they also breed in March and April. One hundred eggs average 15·3 × 10·7 mm.: maxima **16·8** × 10·9 and 16·7 × **12·2** mm.; minima **13·5** × 10·6 and **14·1** × **9·9** mm.

**Habits.** Those of the genus. This is perhaps more strictly a bird of the jungle than most of the preceding birds but is not shy and is frequently also found near villages and in cultivated country.

## (1022) Urolonchа striata fumigata.

THE ANDAMAN WHITE-BACKED MUNIA.

*Munia fumigata* Walden, A. M. N. H., (4) xii, p. 488 (1873) (Andamans).
*Urolonchа fumigata.* Blanf. & Oates, ii, p. 186.

**Vernacular names.** None recorded.

**Description.** Differs from *U. s. striata* in having no traces of striæ on the upper plumage, in having the chin and throat a less deep velvety black, sometimes tinged with brown, and in having indications of pale edgings at the sides and, more rarely still, next the abdomen.

**Colours of soft parts** as in *U. s. striata*.

**Measurements.** Wing 48 to 51 mm.; tail 42 to 45 mm.; tarsus 13 to 14 mm.; culmen about 10 to 11 mm.

**Distribution.** Andamans only.

**Nidification.** Messrs. Osmaston and Wickham found this Munia breeding during May and June but, according to Davison, they must also breed a great deal later. Eggs collected by the two first-named gentlemen measure about 15·5 × 11·4 mm.

## (1023) Uroloncha striata semistriata.

The Nicobar White-backed Munia.

*Munia semistriata* Hume, Str. Feath., ii, p. 257 (1874) (Nicobars).
*Uroloncha semistriata.* Blanf. & Oates, ii, p. 186.

**Vernacular names.** None recorded.

**Description.** Similar to *U. s. striata* but with the upper striations faint and the breast-feathers edged with pale fulvous as in the *acuticauda* group. In good specimens the upper tail-coverts are also edged with rufous.

**Colours of soft parts** as in *U. s. striata*.

**Measurements.** Wing 48 to 51 mm.; tail 38 to 40 mm.; tarsus 13 to 14 mm.; culmen about 10 to 11 mm.

**Distribution.** Nicobars only.

This race is very close to *U. s. subsquamicollis* but differs from that form in having practically no striæ above and in having the abdomen white or fulvous-white unmarked with black shaft-lines.

**Nidification and Habits.** Nothing recorded.

## (1024) Uroloncha striata acuticauda.

Hodgson's Munia.

*Munia acuticauda* Hodgs., As. Res., xix, p. 153 (1836) (Nepal).
*Uroloncha acuticauda.* Blanf. & Oates, ii, p. 184.

**Vernacular names.** *Samprek-pho* (Lepcha); *Namprek* (Bhutea); *Dao-muni* (Cachari).

**Description.** Forehead, face, chin and upper throat black; upper rump white; remainder of upper plumage chocolate-brown, the feathers with pale fulvous shafts; tail black; wing-coverts dark chocolate-brown with pale shafts; greater coverts and quills blackish; sides of the neck rufous with paler edges and shafts;

lower throat and upper breast chocolate with fine shaft-lines and rufous edges, often obsolete on the breast and very definite on the sides of the neck; abdomen, flanks and lower breast fulvous or greyish white very faintly streaked with black; posterior flanks, vent and under tail-coverts chocolate with fulvous striæ.

**Colours of soft parts.** Iris dark brown; bill dark plumbeous, the culmen almost black; legs and feet light to dark plumbeous.

**Measurements.** Wing 49 to 53 mm.; tail 40 to 46 mm.; tarsus 14 to 15 mm.; culmen 10·0 to 11·5 mm.

**Distribution.** The Himalayan Terai and Sub-Himalayan ranges from Garhwal to Eastern Assam, Bihar and Eastern Bengal, Southern Shan States, Northern Burma and Northern Siam.

This and the two succeeding forms can be distinguished from the preceding three by their striated lower plumage, as well as by the minor differences shown in the description given above.

Fig. 23.—Tail of *U. s. acuticauda.*

**Nidification.** Hodgson's Munia breeds throughout the lower ranges of the Himalayas up to at least 6,000 feet, most commonly perhaps between 2,000 and 4,000 feet. It frequents forests for breeding purposes and is rare in cultivated areas or round villages. The nest is generally placed on the edge of some glade or river opening but sometimes far inside evergreen jungle. It is of the usual description but is made almost entirely of very fine grass stems and has no lining. It may measure anything from six inches to a foot either way, is very untidy and the grass ends often project round the mouth so as to form a short rough tunnel. There is never any attempt at concealment and both birds go in and out of the nest whilst one is standing close by. They obtain the grass or grass bark by nipping the blade or leaf at the bottom, seizing the small projecting piece and then, flying upwards, strip or tear off a long piece. Eggs and young may be found throughout the year but May and June are certainly the favourite laying months, many birds having second broods in July and August. They lay four to eight eggs and 100 average 15·3 × 10·9 mm.: maxima **16·9** × 11·0 and 15·5 × **11·5** mm.; minima **13·1** × 10·4 and 14·5 × **9·9** mm.

**Habits.** A cheerful sprightly little bird, yet one of the wilds rather than of civilization. In summer it keeps to the mountains and the broken country adjoining but in Winter is found far into the Plains of Assam and Bengal. They keep in small family parties of half-a-dozen to double that number and all feed close together on grass seed, berries and grain. When not breeding the nest is often used as a roosting-home by the whole family, sometimes a very tight squeeze. The flight is direct and very strong for so small a bird but is seldom long sustained.

## (1025) Uroloncha striata subsquamicollis.

THE MALAYAN SHARP-TAILED MUNIA.

*Uroloncha acuticauda subsquamicollis* Stuart Baker, Bull. B. O. C., xlv, p. 59 (1925) (Bankasoon).

**Vernacular names.** None recorded.

**Description.** Darker above than the preceding bird and having the lower parts more grey and much more heavily striated throughout. The feathers of the breast also show the rufous edges more distinctly.

**Colours of soft parts** as in *M. s. acuticauda*.

**Measurements.** Wing 47 to 49 mm.; tail 38 to 44 mm.; tarsus 12 to 13 mm.; culmen 10 to 11 mm.

**Young** like that of the typical form.

**Distribution.** Burma from Tounghoo South to Singapore and Sumatra; Siam from, at least Bangkok Southwards; Cochin China, S. Yunnan, Annam, Hainan and Formosa.

**Nidification** and **Habits.** Similar to those of the preceding bird.

## (1026) Uroloncha striata squamicollis.

THE CHINESE SHARP-TAILED MUNIA.

*Uroloncha squamicollis* Sharpe, Cat. B. M., xiii, p. 359 (1890) (Szechuan).

**Vernacular names.** None recorded.

**Description.** Above paler than *U. s. acuticauda* and with the lower parts even darker in colour and as heavily striated as *U. s. subsquamicollis*. The breast is brighter chestnut than in either of the two preceding races and has better-defined, broader pale edges and well-marked pale shafts; the white rump-band is always much suffused with grey and is lined and mottled with brown; the lower rump is generally a brighter rufous.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 50 to 52 mm.; tail 38 to 44 mm.; tarsus 13 to 14 mm.; culmen 10·0 to 11·0 mm.

**Distribution.** Western China, Eastern Shan States, North Yunnan and South China.

**Nidification.** Messrs. R. E. Vaughan and K. H. Jones found this Munia breeding at Macao and Canton from April to September and later laying five or six eggs which measure about 16·0 × 10·9 mm. They are said to place their nests in bamboos, bushes and trees, often at a very great height from the ground.

**Habits.** This Munia is migratory or partially so, leaving its most Northern habitats during the Winter. Otherwise its habits are those of the family.

## (1027) Uroloncha leucogastra leucogastra.

THE WHITE-BELLIED MUNIA.

*Amadina leucogastra* Blyth, J. A. S. B., xv, p. 286 (1846) (Malay Peninsula).
*Uroloncha leucogastra.* Blanf. & Oates, ii, p. 186.

**Vernacular names.** None recorded.

**Description.** Whole head and upper plumage dark chocolate-brown, each feather pale-shafted; upper tail-coverts black; tail dark brown, edged, broadly at the base, more narrowly on the terminal half, with shining golden fulvous; chin, throat, breast and flanks deep chocolate-black; thighs and under tail-coverts the same; abdomen running up into the centre of the breast white, often more or less tinged with fulvous.

**Colours of soft parts.** Iris dark brown; upper mandible deep plumbeous to black; lower mandible paler and more plumbeous-blue; legs and feet dusky-plumbeous or dull smalt-blue.

**Measurements.** Total length about 115 mm.; wing 47 to 49 mm.; tail 31 to 32 mm.; tarsus 13 mm.; culmen 9 to 10 mm.

**Young birds** are unstreaked brown above with brown upper tail-coverts; below they are buff, more or less streaked with pale shaft-stripes.

**Distribution.** Tenasserim from Tavoy South to Singapore and Borneo. *Uroloncha leucogastroides* (Java) and *U. everetti* should be treated as subspecies of this form.

**Nidification.** This is apparently a forest breeder, nests found by Davison and W. A. T. Kellow all being in forest, though in the latter case they were near villages. This Munia makes the usual type of nest but sometimes employs bamboo leaves in its construction. Forty eggs average 15·5 × 11·5 mm.: maxima 16·8 × 12·1 mm. and 16·1 × 12·2 mm.; minima 14·6 × 10·9 and 15·0 × 10·6 mm.

**Habits.** Those of the genus but it is more of a forest bird than many.

## (1028) Uroloncha rufiventris.

THE RUFOUS-BELLIED MUNIA.

*Uroloncha rufiventris* Stuart Baker, Bull. B. O. C., xlv, p. 84 (1925) (Wynaad).
*Uroloncha pectoralis.* Blanf. & Oates, ii, p. 187.

**Vernacular names.** *Tinna kuravi* (Tel.).

**Description.** Upper plumage chocolate-brown with pale shafts, forehead and crown darker; rump dark brown with broader streaks of fulvous; upper tail-coverts glistening rufous; tail blackish brown; wing-coverts dark brown; quills blackish; lores, cheeks, chin, throat and upper breast black, the lores and cheeks flecked with tiny rufous striæ; remainder of underparts dark fulvous or pinkish brown, the feathers of the vent and under tail-coverts with wide dark brown, or blackish, margins.

**Colours of soft parts.** Iris brown; bill dark slate to practically black; legs and feet dark slaty.

**Measurements.** Total length about 120 mm.; wing 55 to 57 mm.; tail 36 to 39 mm.; culmen about 11 to 12 mm.; tarsus 13 to 14 mm.

**Young birds** are all brown above, the wings and tail blackish; below they are fulvous, each feather with a pale shaft widening to a pale spot near the tip and with the faintest possible dark margin.

**Distribution.** The Western coast of India from the Wynaad to South Travancore.

The name by which this bird has hitherto been known, *U. pectoralis* (Jerdon MS., Blyth, J. A. S. B., xiii, 1844), is unfortunately preoccupied by *A. pectoralis* of Gould, P. Z. S. 1840, p. 127.

**Nidification.** The Rufous-bellied Munia breeds in the Nilgiris and other Hill districts of South India from July to September. In Travancore Stewart found eggs in March, April, June and July. The nest is similar to that of other Munias but more varied in material, whilst often there is a fair lining of the flowering ends of grasses. The eggs number four to seven, eight to ten according to Miss Cockburn. Thirty-six average 16·0 × 11·5 mm.: maxima **17·8** × 12·0 and 17·5 × **12·3** mm.; minima **15·0** × 10·9 and 15·5 × **10·5** mm.

**Habits.** This Munia is found in the Hills all the year round, in Summer up to some 7,000 feet, in Winter up to about 4,000 feet. In the lower levels it is resident throughout the year. It is found both in grass-lands, scrub jungle and in cultivation and villages, often breeding in and about the latter. They associate in small flocks and have the usual habits of the family.

## (1029) Uroloncha kelaarti.

THE CEYLON MUNIA.

*Munia kelaarti* Blyth, Jerdon B. of I., ii, p. 356 (1863) (Ceylon).
*Uroloncha kelaarti.* Blanf. & Oates, ii, p. 187.

**Vernacular names.** *Wé-kurulla* (Ceylon); *Tinna kuruvi* (Tam.).

**Description.** Similar to the preceding bird but having the rump a deeper black with diamond-shaped spots of white; the lower breast, abdomen, flanks and vent are pinkish white or pale fulvous, each feather boldly barred with blackish.

**Colours of soft parts** as in the preceding species.

**Measurements.** Total length about 115 mm.; wing 51 to 54 mm.; tail 38 to 40 mm.; tarsus about 14 mm.; culmen about 13 mm.

**Young birds** are practically indistinguishable from those of the preceding but show distinct signs of black and white barring on the chin and throat.

**Distribution.** Ceylon only.

This species is undoubtedly only the geographical representative in Ceylon of the Rufous-bellied Munia but environment or some other cause has evolved a form sufficiently well defined to deserve the rank of species. It should, however, be noted that birds of the preceding species from Travancore do show a slight extension of the mottling of the vent on to the abdomen.

**Nidification.** The Ceylon Munia breeds in February and March, again in June and July and perhaps later, making a typical Munia's nest but building sometimes well in the interior of dense forests, sometimes in Coffee Estates and even in creepers growing over houses. The eggs appear to number three to six, often three or four only. Thirty average 16·1 × 11·3 mm.: maxima **17·6** × 10·9 and 16·3 × **12·1** mm.; minima **14·2** × 11·0 and 17·0 × **10·1** mm.

**Habits.** The Ceylon Munia is essentially a Mountain form, being seldom found below 2,000 feet and haunting the highest elevations about the Peak and Newara Eliya. It is said to be swifter in flight than its near relations and to have a loud sibilant note, uttered both on the wing and when at rest. It is less gregarious than most Munias, keeping in small family parties only and soon driving away the young to fend for themselves. They feed almost entirely on seeds and grain and sometimes frequent roads etc. for the purpose of hunting for food among the droppings of cattle and ponies.

## (1030) Uroloncha malabarica.

THE WHITE-THROATED MUNIA.

*Loxia malabarica* Linn., Syst. Nat., 12th ed. i, p. 305 (1766) (India, *Malabar*).
*Uroloncha malabarica.* Blanf. & Oates, ii, p. 188.

**Vernacular names.** *Charchara* (N.W. Provinces); *Pidar*

(South and Central India); *Sar munia* (Beng.); *Jinuwayi* (Tel.).

**Description.** Upper plumage, wing-coverts and inner secondaries earthy-brown, the feathers of the crown with darker centres; lower rump and upper tail-coverts white, the outer tail-coverts edged black; tail black, edged, except near the tip, with bright rusty; greater coverts, wings and primaries blackish; lower plumage pale buffy-white, the sides of the breast and flanks barred with darker buff, in some specimens these parts being practically all buff; ear-coverts almost or quite pure white.

**Colours of soft parts.** Iris hazel to dark brown; upper mandible horny-slate to bluish-slate, lower mandible pale bluish or lavender; legs and feet dark fleshy to reddish purple.

**Measurements.** Total length about 120 mm.; wing 53 to 54 mm.; tail 48 to 49 mm.; tarsus 14 to 15 mm.; culmen 10 to 11 mm.

**Distribution.** All India and the dry, maritime parts of Ceylon. It ascends the Himalayas up to 6,000 feet below Simla; to the East it extends to Eastern Bengal but apparently not to Assam or the Bengal Districts North and East of the Bay of Bengal. On the West it is found in Baluchistan and Afghanistan and has been obtained at Muscat in Persia. The Sind, Baluchistan and Afghan birds are posssibly rather paler than Southern and Eastern specimens but are not, I consider, sufficiently so to merit separation.

**Nidification.** In Ceylon the White-throated Munia breeds in the drier areas in the North, whilst in India also it selects the less-watered and well-wooded areas up to some 6,000 feet elevation. It breeds practically throughout the year except at its highest elevation, where the breeding months are restricted from June or July to September. The nest is the usual untidy ball of grass, but is very bulky, with thick walls and often a substantial base—a foundation of dead and green leaves. It breeds in gardens, verandahs, round about villages and, less often, in scrub jungle and long grass and often several nests may be found together. Occasionally a cup- or saucer-shaped nest is built, but this is quite the exception. The eggs number four to eight but sometimes two hens lay in one nest and fifteen eggs have been thus found. One hundred eggs average 15·7 × 11·7 mm.: maxima **18·5** × 11·5 and 16·5 × **12·5** mm.; minima **13·5** × 12·2 and 14·8 × **11·2** mm.

**Habits.** Those of the genus. This Munia is probably locally migratory in the higher hills but is certainly resident up to 3,000 feet or even higher.

## Uroloncha punctulata.

*Key to Subspecies.*

A. Under tail-coverts fulvous ..... *U. p. punctulata*, p. 91.
B. Under tail-coverts almost white.
  *a.* Tail suffused with olive-yellow .. *U. p. subundulata*, p. 92.
  *b.* Tail suffused with olive-grey .... *U. p. topela*, p. 92.

## (1031) Uroloncha punctulata punctulata.

THE INDIAN SPOTTED MUNIA.

*Loxia punctulata* Linn., Syst. Nat., 12th ed. i, p. 302 (1766)(Calcutta).
*Uroloncha punctulata.* Blanf. & Oates, ii, p. 189.

**Vernacular names.** *Telia munia* (Hind. in the N.); *Sing-baz, Shinbaz* (Hind. in the Deccan and Mussoorie); *Shubz munia* (Beng.); *Kakkara jinuwayi* (Tel.); *Wé-kurulla* (Cing.); *Tinna kuravi* (Tam.).

**Description.** Forehead, over the eye, sides of the head, chin and throat rich chocolate; upper plumage and wings dull chocolate-brown, the back, scapulars and wing-feathers with whitish shafts; rump barred with white and blackish; upper tail-coverts and central tail-feathers glistening golden fulvous; outer tail-feathers brown edged with yellow; below white, each feather with a bold black edging; centre of abdomen immaculate; under tail-coverts fulvous with more or less blackish centres.

**Colours of soft parts.** Iris deep reddish brown to almost crimson; bill slaty, the culmen and base blackish; legs and feet plumbeous, the claws horny-brown.

**Measurements.** Total length about 125 mm.; wing 52 to 57 mm.; tail 43 to 47 mm.; tarsus 15 to 16 mm.; culmen 11 to 12 mm.

**Young birds** are a lighter chocolate-brown above, with no barring on the rump and with no glistening colour on the upper tail-coverts or tail; below they vary from dull fulvous-grey to a bright deep buff.

**Distribution.** Ceylon, all India except Sind, the Punjab, and the drier portions of Rajputana and the N.W. Provinces. East it extends to Eastern Bengal and North-Western Assam. Birds from Pegu also seem nearer to the typical race but the black below is less vivid and the glistening yellow of the upper tail-coverts is often replaced by olive-yellow. These birds are in fact intermediate between the typical form and *U. p. subundulata.*

**Nidification.** The Spotted Munia breeds up to some 5,000 or 6,000 feet throughout India in the better-wooded country, where there is a plentiful and regular rainfall. In places where it is particularly common it breeds in communities of some size; thus Miss Cockburn had eight nests in the trellis of her verandah and Layard counted forty in one tree, in one case several being built attached to one another. It breeds more or less throughout the year but more freely after the rains break. One hundred eggs average 16·4 × 11·6 mm.: maxima **18·0 × 12·0** mm.; minima **14·0** × 10·8 and 17·1 × **10·7** mm.

**Habits.** This familiar little Munia frequents gardens, compounds and villages throughout most of India but is rare in Rajputana and the North-West Provinces. In the higher ranges of its habitat it moves vertically with the seasons but elsewhere is resident.

## (1032) Uroloncha punctulata subundulata.

THE BURMESE SPOTTED MUNIA.

*Munia subundulata* Godw.-Aust., P. Z. S., 1874, p. 48 (Manipur).
*Uroloncha punctulata.* Blanf. & Oates, ii, p. 189 (part).

**Vernacular names.** None recorded.

**Description.** Differs from the typical race in having the rump much less boldly barred, often having the bars only faintly discernible; the upper tail-coverts and tail are suffused with olive-yellow. Below, the black edging is replaced by paler chocolate-brown and the ground-colour is less pure white, making these parts far less boldly black and white than they are in *U. p. punctulata*; the under tail-coverts are also generally white, not buff.

**Colours of soft parts** as in the Indian race.

**Measurements.** Wing 53 to 55 mm.

**Distribution.** Manipur to Tenasserim in the South, excluding a certain area round Pegu; East this form does not extend to Siam but has been recorded from Cochin China; specimens from Yunnan and the Shan States seem nearer to the Chinese form *topela.* Specimens from the Khasia Hills, Cachar, Sylhet, Tippera and Chittagong are somewhat intermediate and individuals may be met with indistinguishable from true *punctulata*; on the whole, however, they are nearer the Burmese birds and should be retained under the name *U. p. subundulata.*

**Nidification.** Similar to the preceding. The breeding-season is late, August to October, though nests may be seen in most months. Thirty eggs average 16·1 × 11·1 mm.: maxima **17·0** × **12·0** mm.; minima **14·0** × 10·4 and 14·8 × **10·3** mm.

**Habits.** Those of the species.

## (1033) Uroloncha punctulata topela.

THE CHINESE SPOTTED MUNIA.

*Munia topela* Swinh., Ibis, 1863, p. 380 (Amoy).
*Uroloncha punctulata.* Blanf. & Oates, ii, p. 189 (part).

**Vernacular names.** None recorded.

**Description.** Very close to *U. p. subundulata* but generally much browner, less chocolate above; the barring on the rump is obsolete or ill-defined and these parts are tinged with olive-grey; upper tail-coverts glistening straw-yellow; barring below dusky brown rather than chocolate.

**Colours of soft parts** as in other races.

**Measurements.** Wing 53 to 56 mm.

**Distribution.** South China, Formosa, Hainan, Yunnan and Shan States. Birds from N.E. Burma have the dull brown upper plumage of *topela* but the chocolate-brown bands to the

underparts as in *subundulata* and are nearer the latter form. Individual variation is great in all these races.

**Nidification** and **Habits.** Little recorded but similar to those of the other races.

## Genus **ERYTHRURA.**

*Erythrura* Swainson, Class. B., ii, p. 280 (1837).

Type, *Erythrura prasina* Sparrm.

The genus *Erythrura* contains a single species of Munia, distinguished by its very beautiful multi-coloured plumage. The sexes differ considerably in colour and in the male the tail is much longer than it is in the female. In the former sex the tail is longer than the wing and the two central tail-feathers are narrow, pointed and greatly elongated.

## Erythrura prasina.

*Loxia prasina* Sparrm., Mus. Carls., pls. 72, 73 (1788).

Type-locality: Java.

The form found in Borneo differs from the typical form in having the crimson of the abdomen not restricted to the centre but reaching on to the upper breast and flanks; the upper parts are a much brighter grass-green and the blue on the throat extends on to the upper breast.

### (1034) Erythrura prasina prasina.

THE MALAY LONG-TAILED MUNIA.

*Loxia prasina* Sparrm., Mus. Carls. pls. 72, 73, (1788) (Java).
*Erythrura prasina.* Blanf. & Oates, ii, p. 190.

**Vernacular names.** None recorded.

**Descrip ion.—Adult male.** Lores black; forehead, cheeks, ear-coverts, chin and throat blue; upper plumage, wing-coverts, innermost secondaries and edges of quills bright grass-green; lower rump and upper tail-coverts brilliant scarlet-crimson; middle pair of tail-feathers dull red, turning to brown towards the terminal half; outer tail-feathers brown; concealed portions of primaries and outer secondaries dark brown; lower plumage orange-buff with a large patch of scarlet on the upper abdomen.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet fleshy-pink.

**Measurements.** Total length about 150 mm.; wing 57 to 59 mm.; tail 57 to 65 mm.; tarsus 15 mm.; culmen about 12 mm.

**Female.** Like the male but with no scarlet patch on the abdomen; the blue of the head is confined to the cheeks and anterior ear-coverts and sometimes a wash on the throat; the lower parts are a duller buff, often washed with greenish blue on the breast and flanks.

**Young birds** are like the female but have the upper tail-coverts and tail yellowish.

Over the whole range of this species a form occurs having the crimson abdomen replaced with gold, the same colour also replacing the red of the upper tail-coverts and tail.

**Distribution.** Tenasserim to the extreme South of the Malay Peninsula, Java and Sumatra.

**Nidification.** Nothing recorded.

**Habits.** Said to be a shy bird, feeding in the open rice-fields in Tenasserim, sometimes in company with Munias of other genera but retreating into dense bamboo jungle when disturbed. They are gregarious like others of the family and have notes very similar to those of other Munias and, like these, they feed entirely on grain and seeds. Davison says they have a soft twittering note which they constantly utter when roosting. It is possible that this beautiful Munia is only a seasonal visitor to Tenasserim but, judging from the family, it is more likely to be a resident, though retiring to unfrequented places when breeding.

## Genus **STICTOSPIZA**.

*Stictospiza* Sharpe, Cat. B. M., xiii, p. 287 (1890).

Type, *Stictospiza formosa* Lath.

In this genus there is a single species of Munia characterized by its green plumage and by its broad, rounded tail-feathers. The female differs from the male principally in being much paler.

### (1035) **Stictospiza formosa.**

THE GREEN MUNIA.

*Fringilla formosa* Lath., Ind. Orn., i, p. 441 (1790) (India).
*Stictospiza formosa.* Blanf. & Oates, ii, p. 191.

**Vernacular names.** *Hurri Lal*, *Hurri Munia* (Hind.).

**Description.** Whole upper plumage and wings light olive-green, brighter and more yellow on the upper tail-coverts; tail black; concealed portions of wing-quills brown; sides of the head and neck olive-yellow; chin, throat and upper breast pale yellow, lower breast, centre of abdomen, vent, thigh-coverts and under tail-coverts bright yellow; flanks barred with greenish brown and white, the feathers sometimes tipped with yellow.

**Colours of soft parts.** Iris pale to dark brown; bill waxy-red; legs and feet slaty-brown to fleshy-brown.

**Measurements.** Total length about 110 mm.; wing 46 to 49 mm.; tail 43 to 45 mm.; tarsus 14 mm.; culmen 9 to 10 mm.

**Female.** Similar to the male but duller and paler; above tinged with ashy and below much greyer and duller.

**Young birds** have the upper plumage olive-brown; the lower plumage dull buffy shading to oily yellow on the abdomen, vent and under tail-coverts; the flanks have no barring and the bill is black.

**Distribution.** The Central portion of India; West to Mt. Abu, East to Palamau and Lohardaga, North to Jhansi and South to Chanda and Ahiri.

Fig. 24.—Tail of *S. formosa*.

**Nidification.** The Green Munia is said to breed in Raipur from October to January and at Saugor in July. It builds a nest of coarse grass like that of other Munias, which it places in a sugar-cane, interlacing some of the leaves of the latter into the frame-work of the nest. Several pairs breed in one small area but, in spite of this, few nests and eggs have been taken. The eggs average about 17·2 × 11·9 mm. (*Hume*).

**Habits.** Very little has been recorded about this handsome Munia. It keeps much to dense grass or to cultivated crops which have grown high and afford good cover, nor are they birds which frequent the neighbourhood of gardens and villages. In food, flight, etc. they are quite typical of the family and they are even more constantly gregarious than most of its members.

## Genus **AMANDAVA**.

*Amandava* Blyth, Nat. Hist. Selborne, White, p. 44 (1836).

Type, *Amandava amandava* Linn.

The genus *Amandava* contains two Indian species of Munia, in which the males are red and the females brown, both sexes being much spotted with white on various parts of the plumage. *Amandava* differs from *Stictospiza* in its narrower, more pointed tail-feathers as well as in colour-pattern. The two species this genus contains are sometimes treated as geographical races but as there seems to be no intermediate forms to link the two together I give them the rank of full species.

### *Key to Species.*

A. Abdomen black ..... *A. amandava*, p. 96.
B. Abdomen yellowish red ..... *A. flavidiventris*, p. 97.

## (1036) **Amandava amandava.**

THE INDIAN RED MUNIA.

*Fringilla amandava* Linn., Syst. Nat., 12th ed. i, p. 319 (1766) (Calcutta).
*Sporæginthus amandava.* Blanf. & Oates, ii, p. 192.

**Vernacular names.** *Lal Munia* (Hind.); *Torra jinuwayi* (Tel.).

**Description.—Adult male.** Whole head and upper plumage crimson, the bases of the feathers brown and showing through in varying degree; when much abraded the crimson almost disappears; when quite freshly moulted there are a few tiny specks of white on the back, becoming larger and more numerous on the rump and upper tail-coverts; tail black, the outer feathers tipped with white; below from chin to breast deep crimson, the latter spotted with white; flanks crimson, boldly spotted with white; centre of the abdomen, vent and under tail-coverts black; wing-coverts and quills brown, the coverts and innermost secondaries with a terminal white spot; the wing-coverts in freshly-moulted birds are narrowly edged with crimson.

**Colours of soft parts.** Iris orange-red to crimson; bill red, dusky at the base; legs and feet fleshy-brown.

**Measurements.** Total length about 115 mm; wing 40 to 48 mm.; tail 37 to 38 mm.; tarsus about 14 mm.; culmen about 8 mm.

**Female.** Above brown, the scapulars, wing-coverts and inner secondaries tipped white; upper tail-coverts crimson with minute terminal white spots; tail brownish black; lores black; chin yellowish white; throat and breast darker and more grey; abdomen, vent and under tail-coverts bright saffron.

**Young birds** are all brown above, the wing-feathers broadly edged with fulvous; below dull buff.

**Distribution.** Ceylon, all India, except the Punjab, to the Himalayas; Upper Burma as far South as the Upper Chindwin, Cochin China, Siam, Singapore and Java. Whether this bird is really indigenous to these South-Eastern countries seems doubtful and it may have been introduced to them as it has been to Mauritius.

**Nidification.** The Red Munia breeds all over India except in some of the more arid and bare districts. Nests may probably be found in any month of the year but most birds breed after the rains commence in late June and continue up to October. In Assam, Bengal and the wetter portions of their range they freely breed also from March to May. The nests are merely rather small, neat replicas of those of other Munias, made of fine grasses and more neatly finished than most. They do not breed in communities as some Munias do but I have found two or three nests in the same garden and, occasionally, two or more are said to set up house together and occupy the same nest. They lay five to ten eggs and one hundred average 14·4 × 11·5 mm.: maxima

**17·0 × 12·1** and **15·5 × 12·5** mm.; minima **13·0 × 10·6** mm. In shape they are broader ovals than the eggs of the other genera of this Subfamily.

**Habits.** This little Munia is found all over the better-watered plains and up to 6,000 feet in the hills of Southern India, 3,000 feet in the Northern Himalayas and up to 4,000 feet in the hills South of the Brahmaputra and Chin Hills. It is a frequenter of villages, gardens and cultivation but it also occurs, where it is abundant, in grass-land and in thin scrub-jungle. It is a popular cage-bird, thriving in confinement and in this state will eat bananas, bread and milk, "suttoo" and other food as well as grain and seed. It has a very beautiful, though very feeble little song and is a most charming, confiding little pet.

## (1037) **Amandava flavidiventris.**

THE BURMESE RED MUNIA.

*Estrelda flavidiventris* Wallace, P. Z. S., 1863, p. 840 (Timor & Flores).
*Sporæginthus flavidiventris.* Blanf. & Oates, ii, p. 193.

**Vernacular names.** None recorded.

**Description.—Adult male.** Very similar to *A. amandava* but with the flanks crimson, spotted with white throughout; the centre of the abdomen is orange-yellow; the under tail-coverts are black spotted with crimson-white.

**Colours of soft parts.** Iris crimson, eyelids livid purple; bill deep red with a black base; legs and feet flesh-colour, the claws darker.

**Measurements.** Wing 44 to 45 mm.

**The Female and Young** cannot be distinguished from those of the Indian Red Munia.

**Distribution.** Central and South Burma to Tenasserim; Shan States.

**Nidification** and **Habits** very much the same as those of the Indian Red Munia. Col. Harington and Mr. Wickham found them breeding in October, November and December in the Shan States and Mr. Oates took eggs in Pegu in the first of these months. They make their nests almost always in grass, short or tall, and place them very close to the ground and well concealed.

## Family FRINGILLIDÆ.

The intrinsic muscles of the syrinx fixed to the ends of the bronchial semi-rings; the edges of the mandibles smooth; the hinder part of the tarsus longitudinally bilaminated, the laminæ entire and smooth; the front of the tarsus scutellated; wing with nine visible primaries, the first and second subequal in length; secondary quills reaching about three-quarters the length of the wing; bill more or less conical; tail of twelve feathers; nostrils pierced close to the line of forehead and close to the culmen; rictal bristles few and short; sexes generally dissimilar; plumage of young various.

As already stated in reference to the *Ploceidæ*, practically the only constant difference between that family and the present one consists in the latter having only nine visible primaries.

The *Fringillidæ* contains a very large number of species of birds generally described as Finches, which have a strong family resemblance to one another.

The Finches have, as a rule, only one moult a year but their Summer and Winter plumage is often very different. This is owing to the effect of abrasion wearing off the margins of the feathers, which are in so many cases coloured differently to the rest of the feather.

The majority of the Finches are migratory but in many cases migratory birds are represented in some areas by local breeding residents, a fact which has rendered discrimination in geographical races very difficult and, even now, far more material is urgently required in the British Museum.

The *Fringillidæ* may be divided into three fairly well-defined groups.

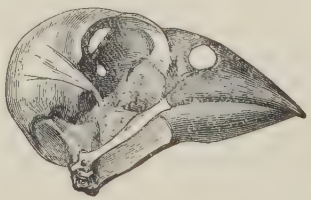


Fig. 25.—Skull of *Coccothraustes c. humii*.

Upper mandible produced backwards behind the front line of the bony orbit; inferior outline of lower mandible straight or nearly so ..... ... *Coccothraustinæ*, p. 99.

Fig. 26.—Skull of *Fringilla cœlebs*.

Upper mandible not produced backwards behind the front line of orbit; inferior outline of lower mandible with a slight re-entering angle; cutting-edges of both mandibles everywhere in contact..... *Fringillinæ*, p. 107.

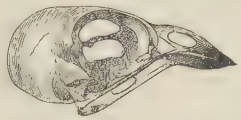


Fig. 27.—Skull of *Emberiza citrinella*.

Upper mandible not produced backwards behind front line of orbit; inferior line of lower mandible greatly angulate; cutting-edges of mandibles not everywhere in contact but leaving a gap of greater or less extent. *Emberizinæ*, p. 195.

## Subfamily COCCOTHRAUSTINÆ.

The Subfamily *Coccothraustinæ* contains those Finches which are characterized by a very large bill. They are birds of considerable size and rather bright coloration and, in all the Indian species, the sexes differ from one another. They have only one moult a year.

*Key to Genera.*

A. Tips of inner primaries and outermost secondaries square or sinuated; margin of upper mandible not toothed near gape ..... COCCOTHRAUSTES, p. 99.

B. Tips of all wing-quills rounded or pointed; margin of upper mandible sinuated or toothed near gape.

*a*. Difference between wing and tail about equal to length of tarsus .... PERISSOSPIZA, p. 101.

*b*. Difference between wing and tail about equal to twice length of tarsus. MYCEROBAS, p. 105.

### Genus COCCOTHRAUSTES.

*Coccothraustes* Brisson, Orn., iii, p. 218 (1760).

Type, *Coccothraustes coccothraustes* Linn.

The genus *Coccothraustes* contains the Hawfinches, with a single species, geographical races of which extend practically throughout Europe and North and Central Asia.

In *Coccothraustes* the bill is conical, with the culmen nearly straight and the cutting-edge of the upper mandible curved but not toothed near the gape; the nostril is partly concealed by hairy feathers; the tail is short and square; the wing is pointed and the innermost primaries and outer secondaries have sinuous, square tips; the tarsus is short and strong.

## Coccothraustes coccothraustes.

*Loxia coccothraustes* Linn., Syst. Nat., 10th ed. i, p. 171 (1758).

Type-locality: Western Europe.

The typical form differs from the only known Indian race in being darker coloured and in having the sides of the body vinaceous instead of tawny brown.

## (1038) Coccothraustes coccothraustes humii.

HUME'S HAWFINCH.

*Coccothraustes humii* Sharpe, P. Z. S., 1886, p. 90 (Attock, N.W. Punjab); Blanf. & Oates, ii, p. 196.

**Vernacular names.** None recorded.

Fig. 28.—Head of *C. c. humii*.

**Description.—Adult male.** Feathers round the base of the upper and lower mandibles, lores, chin and throat black; forehead, crown, sides of the head, back, scapulars, lesser wing-coverts and inner secondaries tawny brown; a broad ashy-grey collar on the nape and sides of the neck; rump and upper tail-coverts paler tawny brown tinged with orange; tail black with broad white tips, the central pair of feathers with an intermediate patch of grey; lesser wing-coverts tipped ashy; median and outer webs of greater coverts white; remainder of wing black, the primaries glossed with blue at the tips and with a broad white bar across the middle of the inner webs; below pale tawny brown, darker on the flanks and albescent on the vent; under tail-coverts white; under wing-coverts white.

**Colours of soft parts.** Iris greyish white; bill horny-white, the upper mandible tinged with fleshy and in summer becoming pale bluish-horny; legs pale fleshy.

**Measurements.** Total length about 175 mm.; wing 97 to 102 mm.; tail 61 to 66 mm.; tarsus 21 to 22 mm.; culmen 20 to 22 mm.

**Female.** Like the male but paler and more dull and with the head concolorous with the ashy nape.

**Young birds** are dingy brown above, with traces of dark terminal bars to the feathers; the forehead and sides of the head are suffused with yellow, as is the white throat; below white, with dark brown terminal bars to the feathers of the breast, flanks and thigh-coverts.

**Distribution.** Attock in the N.W. Punjab, Baluchistan, Afghanistan and Turkestan.

**Nidification.** Unknown.

**Habits.** Apparently a rare and very irregular visitor to India. Delmé-Radcliffe first obtained it in Attock in 1869 and 1870 and it was then observed as common in the low hills of that district by A. E. Jones in the Winter of 1918–1919. At Kohat Whitehead found them common in the Miranzai Valley and rare on the Samana. Here they occurred in small parties in olive-groves, orchards and gardens, feeding on berries, seeds and the kernels of fruit stones. They are noisy birds, frequently uttering their loud call-notes syllabified as "tee" or "zitt." Whitehead obtained it in the Peiwar Range at 9,000 feet on the 5th of May and thought that it probably bred there. Meinertzhagen obtained a specimen in Quetta, and Fulton found it at Drosh at about 4,000 feet elevation in May.

## Genus **PERISSOSPIZA.**

*Perissospiza* Oberholser, Proc. Nat. Mus. U.S., xxii, p. 227 (1918).

Type, *Perissospiza icterioides* Vigors.

The name *Pycnoramphus* Hume, 1874, by which this genus has hitherto been known, is preoccupied by *Picnoramphus* Rosenberg (Batavier Natur. Tijdschr. Nederl. Ind. xxix, 1866, p. 143) and cannot therefore be used. The bill of this genus differs from the preceding in having the cutting-edge of the upper mandible toothed near the base and in having the inner primaries and outer secondaries rounded at the tips; the tail is square but is longer than in *Coccothraustes*.

### *Key to Species.*

A. No white spot on wing ..... *P. icterioides*, p. 102.
B. A white spot on wing ..... *P. carnipes*, p. 104.

## Perissospiza icterioides.

*Key to Subspecies.*

A. Head black.
  *a*. Hind neck bright golden yellow, merely tinged deeper near the back; thighs black ..... *P. i. icterioides*, ♂, p. 102.
  *b*. Hind neck deep rufous-orange; thighs yellowish..... *P. i. affinis*, ♂, p. 103.
B. Head ashy.
  *c*. Breast ashy grey; abdomen buff .... *P. i. icterioides*, ♀, p. 102.
  *d*. Breast and abdomen olive-yellow .... *P. i. affinis*, ♀, p. 103.

### (1039) Perissospiza icterioides icterioides.

THE BLACK-AND-YELLOW GROSBEAK.

*Coccothraustes icterioides* Vigors, P.Z.S., 1830, p. 8 (Simla, Almora).
*Pycnorhamphus icteroides*. Blanf. & Oates, ii, p. 198.

**Vernacular names.** None recorded.

**Description.—Adult male.** Whole head, throat, wings, tail-coverts, tail, scapulars and sides of the upper back, axillaries and thigh-coverts black; remainder of plumage bright golden yellow, tinged with orange on the nape.

**Colours of soft parts.** Iris reddish brown; bill waxy-yellow in winter, greenish-horny in summer; legs and feet pale flesh-colour.

**Measurements.** Total length about 230 mm.; wing ♂ 126 to 136 mm., ♀ 122 to 128 mm.; tail 88 to 97 mm.; tarsus 28 to 29 mm.; culmen 23 to 25 mm.

**Female.** Upper plumage ashy-grey, the head rather darker and the rump more fulvous; tail black, the central feathers ashy-bronze; winglet, greater coverts and primaries blackish; chin ashy-fulvous; throat and breast like the back but paler; abdomen, flanks and under tail-coverts buff.

**Young males** are like the females but have a darker head and the lower back and rump yellow. There are no specimens in the British Museum series to show whether the nestling plumage differs from that of the female.

**Distribution.** From Afghanistan, Mussoorie and Murree through South Kashmir, the Simla States and Kuman.

**Nidification.** This Grosbeak breeds throughout its range between 7,500 and 10,000 feet in the months of April and May. It apparently has two broods, as Rattray took eggs as early as April 4th, whilst Jones took fresh eggs as late as the end of June. The nests are compact but rather bulky cups made of fine twigs, dried moss, lichen and plant-stems, lined with fine roots. They are built on Deodar-trees, generally on a branch close to the trunk, sometimes on a branch well away from it and, occasionally,

on creepers growing over the tree. It may be placed at any height between 18 and 60 feet from the ground. The eggs are either two or three in number, the ground-colour a pale grey-green, rarely with a reddish tinge, marked sparsely with thick and fine hair-lines, a few blotches and spots of deep purple-black and a few similar underlying ones of pale neutral tint. Most of the markings are confined to the larger end, in some forming a definite zone or ring. The texture is fine and smooth and the shape a long, regular oval. Forty eggs average 28·3 × 19·9 mm.: maxima **32·0** × 20·0 and 29·3 × **20·7** mm.; minima **26·1** × 20·2 and 26·9 × **19·0** mm.

**Habits.** The Black-and-Yellow Grosbeak seems to be resident wherever found, though it may move vertically a couple of thousand feet with the seasons, having been seen at 4,000 feet in Winter. It is a sociable bird, assembling in small flocks and feeding on Pine-shoots and -seeds and other seeds and berries. They feed much on the ground. It is said to be a rather restless, noisy bird, with a slow, dipping flight. Magrath says that its call-note sounds like "trekatree-trekup-trekup" and that the male has a sweet song.

## (1040) Perissospiza icterioides affinis *.

THE ALLIED GROSBEAK.

*Hesperiphona affinis* Blyth, J. A. S. B., xxiv, p. 179 (1855) (Alpine Punjab. Beyond Murree).
*Pycnorhamphus affinis.* Blanf. & Oates, ii, p. 199.

**Vernacular names.** None recorded.

**Description.—Adult male.** Differs from the preceding bird in having the yellow of the rump much deeper and that of the nape and hind neck deeper still, almost an orange-rufous. The black parts are more glossy.

**Colours of soft parts.** Iris brown; bill greenish blue; tarsus fleshy (*Stevens*).

**Measurements** as in *P. i. icterioides.*

**Female.** Whole head, chin and throat ashy-grey, the crown darkest; upper plumage, wing-coverts and exposed portions of secondaries olive-green, brighter and more yellow on the rump and behind the grey of the head; remainder of wings and tail black; lower plumage olive-yellow.

**Distribution.** Garhwal, Nepal and Sikkim through South Tibet into Western China. There is one specimen in the British Museum collected by Anderson in Nagtull, Kuman. Dr. Sushkin

* Since this was in print Whistler has recorded that he has again obtained this Finch in Dharmsala and that both *P. i. icterioides* and *P. i. affinis* occupy, in part, the same breeding range. This would, of course, necessitate the latter being raised to the status of a full species.

tells me that he has obtained this bird from Turkestan; the form there one would have expected to be *P. i. icterioides*.

**Nidification.** Unknown.

**Habits.** Mr. A. E. Osmaston found this race common in Garhwal between 6,000 and 11,500 feet, frequenting forests, chiefly those composed partly of Conifer and partly of other trees, but also in Oak-forests. They feed on cone-seeds, berries and fruits but Mr. Osmaston also took two caterpillars from the stomach of one bird. He syllabifies their calls as follows: the alarm-note a sharp "kurr," like two stones struck together, and a musical call of seven notes, "te-de-le-li-di-li-um.' In Sikkim Stevens never observed this bird below 9,000 feet.

## (1041) Perissospiza carnipes.

THE WHITE-WINGED GROSBEAK.

*Coccothraustes carnipes* Hodgs., As. Res., xix, p. 151 (1836) (Nepal).
*Pycnorhamphus carneipes.* Blanf. & Oates, ii, p. 200.

**Vernacular names.** None recorded.

**Description.—Adult male.** Feathers of the lower back broadly edged with dull greenish yellow; rump greenish yellow and tail-coverts tipped with same; greater coverts and inner secondaries with broad tips of greenish yellow on the outer webs; a broad band of white across the outer web of all but the first primary, narrowly edged with bright yellow; all primaries very narrowly edged with yellowish white; abdomen, vent and under tail-coverts dull olive-orange; remainder of plumage black.

When freshly moulted the males have narrow bluish-grey edges to the feathers of the upper parts, very little paler than the rest of the feather.

**Colours of soft parts.** Iris brown or hazel; bill, upper mandible horny-brown, lower mandible almost white; legs pale fleshy-brown to fleshy-pink. The bill apparently has no seasonal change of colour.

**Measurements.** Total length about 175 mm.; wing 108 to 123 mm.; tail 92 to 96 mm.; tarsus 27 to 28 mm.; culmen about 22 to 23 mm. Shensi birds are big: wing 122 to 125 mm., with tails measuring 100 to 102 mm. They are also slightly paler.

**Female.** Similar to the male but the black parts of the plumage replaced by ashy-brown, often tinged with green on the lower back; the yellow portions are duller and paler, especially on the inner secondaries; the grey-brown of the breast merges into the olive-green of the abdomen; the ear-coverts are streaked with white.

**Distribution.** Afghanistan, the Himalayas from Gilgit to Sikkim, Tibet and the hills North of the Brahmaputra in Assam; Turkestan and Altai.

**Nidification.** The White-winged Grosbeak replaces the Black-and-Yellow Grosbeak in the higher ranges as a breeding bird. Mr. S. L. Whymper took several nests in Garhwal between 13,000 and 14,000 feet. He describes the nests as "very curiously made, there being a sort of outer fence of prickly twigs, then twisted grass and then the inner lining composed entirely of strips of Juniper-bark.". The nests were placed in small Birch-trees and Juniper-bushes between 6 and 15 feet from the ground. They commence breeding in June and lay from the end of that month up to the middle of August. The eggs, two or three in number, are like those of the Black-and-Yellow Grosbeak but are tinged with pink, in one or two cases markedly so, and they average rather smaller. Whitehead found it breeding in the Khagan Valley and on the Safed Koh between 8,000 and 12,000 feet, and Meinertzhagen noticed it breeding at about the same heights at Ziarat, near Quetta.

**Habits.** This Grosbeak is a bird of very high elevations. In the East of its range Stevens thinks it never descends below some 9,000 feet and Walton found it at 12,000 feet in December in the Chumbi Valley. In the North-West, however, it comes into the lower valleys in Winter both at Quetta and on the Afghan frontier. In Winter it collects in flocks and is said not to be shy. Meinertzhagen describes it as a noisy, restless bird, with a rasping call-note and a clumsy dipping flight.

It feeds largely on Juniper-berries.

## Genus **MYCEROBAS.**

*Mycerobas* Cab. in Wiegm. Arch., xiii, p. 350 (1847).

Type, *Mycerobas melanoxanthus* Hodgs.

The genus *Mycerobas* contains a single species of Grosbeak distinguishable by the great size of the bill. The nostrils are partly covered by hairy plumes; the upper mandible has a tooth near the gape as in *Perissospiza*, but larger; the tail is short and forked, the wings as in *Perissospiza*; the sexes differ in colour.

## (1042) **Mycerobas melanoxanthus.**

THE SPOTTED-WINGED GROSBEAK.

*Coccothraustes melanoxanthus* Hodgs., As. Res., xix, p. 150 (1836) (Nepal).
*Mycerobas melanoxanthus.* Blanf. & Oates, ii, p. 201.

**Vernacular names.** *Maltam-pho* (Lepcha).

**Description.—Adult male.** Whole upper plumage, chin, throat and tail dark blackish brown, each feather obsoletely margined with ashy; wings almost black, the inner greater coverts and inner secondaries with a large yellowish-white oval spot on the outer webs; the fourth to eighth primary with a white spot at the

base and a narrow white edge near the tips; axillaries deep brown edged and tipped with yellow; lower plumage deep yellow.

**Colours of soft parts.** Iris brown; bill slaty-plumbeous or bluish-plumbeous; legs and feet leaden-grey.

**Measurements.** Total length about 220 mm.; wing 126 to 135 mm.; tail 74 to 79 mm.; tarsus 23 to 24 mm.; culmen 23 to 25 mm.

**Female.** Upper plumage blackish brown, the feathers edged with bright yellow tinged with green; the feathers of the back with yellow bases; the forehead and a long supercilium to the nape more yellow than black; lores and a broad line from behind the eye down the neck black; a broad moustachial streak blackish; intermediate parts yellow and black, the first predominating; wings like those of the male; chin and throat yellow; sides of chin, throat, neck, the flanks and whole breast bright yellow boldly streaked with black; centre of abdomen, vent and under tail-coverts unstreaked yellow.

Fig. 29.—Head of *M. melanoxanthus*.

**Nestling** similar to the female: the yellow above is replaced with dingy yellowish white and the feathers are conspicuously edged with grey; below the plumage is almost white, rufescent buff on the chin, throat and breast and more yellow on the under tail-coverts; the streaks are distributed as in the female.

**Young males** retain a certain amount of black streaking on the lower plumage after their second moult.

Normally adult males have the bases of the feathers on the back dark grey so that the back appears all black; some, however, have these bases yellow showing up distinctly, possibly a sign of youthfulness.

Birds from Manipur eastwards appear to be very black above and, when more material is available, may have to be separated.

**Distribution.** The Himalayas from Afghanistan and Hazara to Eastern Assam, Cachar, Manipur, Northern Burma, Shan States and Western China in Szechuan.

**Nidification.** In 1903 a nest and two eggs of this Finch were obtained by Nagas for Dr. Coltart from Pine forests above

Margherita, probably about 9,000 feet elevation. The eggs are pale blue, almost unmarked, and are undoubtedly abnormal. A nest obtained by Capt. R. B. Skinner in the Murree Hills was like this one, a cup of moss on a basis of fine twigs, lined with maiden-hair fern stems and fine roots. It was built about 18 feet up in a yew-tree on a steep hill-side. The eggs are described as like those of *P. i. ictericoides*.

**Habits** appear to be much the same as those of the other Grosbeaks. Stevens found it as low down as 4,400 feet in Winter but believes it to breed at very high elevations and refers to the bird obtained by Elwes at Yeomatung, 11,000 feet. Capt. Skinner, however, took its nest much lower down than this near Murree, whilst the nest taken in Assam was at a place almost certainly under 9,000 feet. It probably breeds over a considerable range of elevation.

## Subfamily FRINGILLINÆ.

The *Fringillinæ* comprise the Bullfinches, Rose-Finches, Crossbills, the true Finches and the Sparrows and Mountain-Finches, the two latter groups differing in many anatomical respects from the others, as has been already explained. They all, however, agree in having a bill of medium or rather small size of which the upper mandible is not produced behind the front line of the bony orbit. The cutting-edges of the two mandibles are in contact throughout their length.

The majority of the *Fringillinæ* have only one moult in the year, but the wearing away of the margins of the feathers causes in many species a great difference between the Summer and Winter plumages. Young birds resemble the female.

*Key to Genera.*

A. Rump white; wing-quills and wings with no white ..... PYRRHULA, p. 108.
B. Rump not white; inner webs of inner secondaries white ..... PYRRHOPLECTES, [p. 114.
C. Sexes dissimilar; males above crimson or pink, females brown or greenish.
*a*. No white on tail.
*a'*. Tips of mandibles crossed ..... LOXIA, p. 115.
*b'*. Tips of mandibles not crossed.
*a''*. Bill short and thick, culmen curved.
$a^3$. Tail short, tip of wing reaching beyond middle of tail.
$a^4$. Nostrils exposed ..... HÆMATOSPIZA, p. 116.
$b^4$. Nostrils densely plumed ..... ERYTHROSPIZA, p. 140.
$b^3$. Tail moderate, tip of wing not reaching beyond middle of tail.
$c^*$. Males with abdomen and breast of different colours.
$a^5$. Length of culmen greater than depth at base ..... PYRRHOSPIZA, p. 120.

$b^5$. Length and depth of culmen about equal ..... PROPYRRHULA, p. 118.
$d^4$. Males with abdomen and breast of same colour.
$c^5$. A supercilium present..... PROPASSER, p. 122.
$d^5$. No supercilium present .... CARPODACUS, p. 134.
$b''$. Bill long and slender, culmen straight PROCARDUELIS, p. 145.
*b*. Lateral tail-feathers largely marked with white.
*c'*. Bill small but very swollen..... RHODOSPIZA, p. 143.
*d'*. Bill moderate in size and stout ..... RHODOPECHYS, p. 144.
*e'*. Bill long and stout; wings spotted with white ..... CALLACANTHIS, p. 152.
*f'*. Bill short and pointed; plumage streaked ..... ACANTHIS, p. 154.
D. Sexes much the same; face scarlet, wings marked with yellow ..... CARDUELIS, p. 149.
E. Sexes dissimilar, no white on tail, plumage in both sexes largely green or yellowish.
*c*. Bill small and swollen, culmen curved .. METAPONIA, p. 158.
*d*. Bill long and sharp, culmen straight.
*g'*. Length of culmen about equal to depth at base ..... HYPACANTHIS, p. 160.
*h'*. Length of culmen equal to about twice the depth at base ..... CHRYSOMITRIS, p. 162.
F. Sexes dissimilar; plumage principally brown.
*e*. Breast rufescent; bill lengthened and straight ..... FRINGILLA, p. 163.
*f*. Breast not rufescent; bill slender and culmen curved throughout ..... GYMNORIS, p. 166.
*g*. Breast not rufescent; bill stout and curved.
*i'*. Pale margins of primaries not uniform in width, forming two patches on the wings.
*c''*. No yellow patch on throat and no white on tail ..... PASSER, p. 168.
*d''*. A yellow patch on throat and white spots on tail ..... PETRONIA, p. 183.
*j'*. Pale margins to primaries uniform and not forming two patches.
*e''*. Tail square and not marked with white ..... [p. 185. MONTIFRINGILLA,
*f''*. Tail forked and marked with white . FRINGILLAUDA, p. 190.

## Genus **PYRRHULA.**

*Pyrrhula* Brisson, Orn., iii, p. 308 (1760).

Type, *Pyrrhula europæa* Vieill.

The genus *Pyrrhula* contains the Bullfinches, represented within our limits by four species. They are characterized by the short and very swollen bill, the white rump and deep black wings and tail; the latter is either slightly or deeply forked. The sexes differ considerably in colour.

*Key to Species.*

A. Middle pair of tail-feathers nearly as long as the outermost ..... *P. aurantiaca*, p. 109.
B. Middle pair of tail-feathers fully half an inch shorter than the outermost.
  *a*. Feathers round the base of the bill velvety-black.
    *a'*. Crown greenish yellow to vermilion *P. erythrocephala*, p. 110.
    *b'*. Crown ashy-grey ..... *P. erythaca*, p. 111.
  *b*. Feathers round the base of the bill brown..... *P. nipalensis*, p. 112.

## (1043) Pyrrhula aurantiaca.

THE ORANGE BULLFINCH.

*Pyrrhula aurantiaca* Gould, P. Z. S., 1857, p. 222 (Kashmir); Blanf. & Oates, ii, p. 204.

**Vernacular names.** None recorded.

**Description.—Adult male.** Forehead, lores, chin, cheeks and round the eye velvety-black; rump, under tail-coverts and axillaries white, sometimes suffused with pink; lesser and median wing-coverts orange with subterminal grey bars to each feather; greater coverts black with the terminal third orange-rufous; remainder of wings, upper tail-coverts and tail black; remainder of body plumage deep pinkish orange.

**Colours of soft parts.** Iris brown or hazel; bill black; legs and feet fleshy-pink.

**Measurements.** Total length about 140 mm.; wing 80 to 83 mm.; tail 57 to 58 mm.; tarsus 18 mm.; culmen about 6 to 10 mm.

**Female.** Crown, nape, sides of the head and upper back ashy-brown changing to yellowish brown on the lower back, scapulars and lesser wing-coverts; throat and breast pale dull orange-rufous changing to dull yellow on the abdomen and posterior flanks; remaining plumage as in the male but the greater wing-coverts tipped with pale yellowish-brown instead of orange.

**Young males** are said (Jerdon) to have the underparts, etc., bright orange-yellow instead of deep orange-pink. The series in the British Museum shows every gradation from one colour to the other and the variation may be individual rather than a question of age.

**Distribution.** Himalayas from Gilgit, Hazara and Chitral to Simla States and Garhwal.

**Nidification.** A collector working for Col. A. E. Ward and myself found this Bullfinch breeding on the Rowal Nulla, Kolapur, Kashmir, at about 12,000 feet. Two nests were rather small, compact cups, made principally of grass mixed with twigs, dried moss and roots, lined with musk-deer hair, placed low down in

juniper bushes. Each nest contained three eggs, pure white lightly marked with bright reddish-brown specks and spots rather more numerous at the larger end, and measuring about 20·9 × 15·0 mm.

Rattray found it breeding at Moranjani, Murree Hills, at about 10,000 feet.

**Habits.** Practically nothing recorded. None of the Indian Bullfinches are truly migratory, though they all move vertically to some extent with the season. They are never, however, found in the Plains of India as are some of the truly migratory Finches.

## (1044) Pyrrhula erythrocephala.

THE RED-HEADED BULLFINCH.

*Pyrrhula erythrocephala* Vigors, P. Z. S., 1831, p. 174 (Himalayas—Simla-Almora District); Blanf. & Oates, ii, p. 205.

**Vernacular names.** *Kobyn* (Lepcha).

**Description.—Adult male.** A broad ring of black round the base of the bill and a narrow ring round the eye; next this a

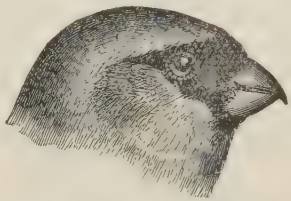


Fig. 30.—Head of *P. erythrocephala*.

narrow pale grey ring shading into deep orange or rufous vermilion on the head and neck; back, scapulars, lesser, median and terminal half of greater coverts grey; base of greater coverts and rest of wing, upper tail-coverts and tail glossy black; on the chin the pale ring shades into paler, duller red on the sides of the head and neck, throat, breast and flanks; this shades again into ashy-white on the lower abdomen; under wing-coverts, axillaries and under tail-coverts white.

**Colours of soft parts.** Iris brown or hazel; bill black; legs and feet pale flesh-colour or fleshy-brown.

**Measurements.** Total length about 140 mm.; wing 76 to 79 mm.; tail 60 to 64 mm.; tarsus 18 to 19 mm.; culmen 9 to 10 mm.

**Female.** Crown and neck yellowish green; under tail-coverts white, remainder of lower plumage drab or greyish brown, generally albescent on the centre of the abdomen and vent; wings, rump, tail and face black as in the male.

**Young males** are like the female but are suffused with yellow below, this yellow gradually deepening with age until the adult

red breast is attained together with the deep rufous-vermilion head.

**Distribution.** Himalayas from Chamba and Southern Kashmir to Bhutan and the hills North of the Brahmaputra. Birds from Nepal eastwards appear to average darker than those from the Western Himalayas; the red of the head and breast is richer and deeper, whilst in the females the lower parts are browner and the green crown deeper and brighter. There is, however, so much individual variation and so much overlapping that I refrain from giving the Eastern form a name.

**Nidification.** Whymper found this Bullfinch breeding in some numbers in Kumaon between 9,000 and 12,000 feet. The nests are made externally of fine twigs, inside which is a thick layer of white beard-moss and then the true lining of coarse roots. The eggs number three or four and are a very pale blue, marked with blotches and specks of reddish-brown or purple-brown and with secondary marks of lavender-pink and pale grey. In a few eggs these are sparsely scattered everywhere but in most form a ring round about the larger end and are scarce elsewhere. They average about 20·8 × 14·7 mm.: maxima **22·4** × 15·0 and 21·2 × **15·2** mm.; minima **19·7** × **14·1** mm.

They are late breeders, all Whymper's eggs having been taken after the middle of August.

**Habits.** In Summer this Bullfinch frequents the higher ranges from 8,000 to 12,000 feet or higher, but in Winter it comes much lower. Whistler obtained it as low down as 5,000 feet at Dharmsala, whilst Stevens says it occurs as low as 3,600 feet (Dikchu-Singhik) in the interior valleys of Sikkim and down to 5,500 to 6,000 feet in the outer valleys. It associates in flocks of some size, feeding on berries and seeds and it appears to be especially fond of the seeds of the nettle. Like all our Indian Bullfinches it frequently descends to the ground to search for its food. They are tame, confiding birds and have very pleasant notes becoming a sweet song in the breeding-season. During the Summer they keep almost entirely to deep forest, preferably Pine, Cedar and Deodar.

## (1045) **Pyrrhula erythaca erythaca.**

BEAVAN'S BULLFINCH.

*Pyrrhula erythaca* Blyth, Ibis, 1862, p. 389 (Sikkim); Blanf. & Oates, ii, p. 206.

**Vernacular names.** *Kobyn* (Lepcha).

**Description.—Adult male.** A broad band of black round the base of the bill, a narrow ring round the eye; next this black a clearly defined almost white line, sharply contrasting with the black but shading into the other colours; crown, sides of head, neck, back, lesser and median wing-coverts and terminal halves

of greater coverts clear ashy-grey ; upper rump black ; lower rump white ; remainder of wings, upper tail-coverts and the tail glossy black ; throat pale ashy-grey ; breast, upper abdomen and flanks orange-red ; lower abdomen and posterior flanks pale grey ; axillaries and under wing-coverts greyish white ; under tail-coverts white.

**Colours of soft parts.** Iris hazel ; bill black ; legs and feet pale fleshy.

**Measurements.** Total length about 150 mm. ; wing 82 to 84 mm. ; tail 67 to 69 mm. ; tarsus 18 to 19 mm. ; culmen 9·5 to 10 mm.

**Female.** Similar to the male but with no red on the breast and generally browner and duller.

**Distribution.** Sikkim, Bhutan and the hills North of the Brahmaputra.

**Nidification.** Nothing recorded.

**Habits.** Similar to those of the preceding bird.

## (1046) Pyrrhula erythaca altera.

RIPPON'S BULLFINCH.

*Pyrrhula altera* Rippon, Bull. B.O.C., xix, p. 19 (1906) (West Yunnan).

**Vernacular names.** None recorded.

**Description.** Differs from the preceding race in being darker above and in having the red breast of the male deeper and richer in tint. The female is also darker above and darker, more brown, below.

**Colours of soft parts.** " Iris dark brown ; bill black ; legs and feet light brown " (*Forrest*).

**Measurements** as in Beavan's Bullfinch.

**Distribution.** Yunnan. Bullfinches of this species seen by Mr. J. P. Cook and by Col. H. H. Harington in the Shan States will assuredly prove to have been this race.

**Nidification** and **Habits.** Nothing recorded.

## (1047) Pyrrhula nipalensis nipalensis.

THE BROWN BULLFINCH.

*Pyrrhula nipalensis* Hodgs., As. Res., xix, p. 155 (1836) (Nepal).
*Pyrrhula nepalensis.* Blanf. & Oates, ii, p. 206.

**Vernacular names.** None recorded.

**Description.—Adult male.** Lores, feathers round the bill and a narrow ring round the eye dark brown ; crown and nape blackish brown, each feather margined with light ashy-brown ; back, lesser and median wing-coverts and about three quarters of the terminal portions of the inner greater coverts ashy-brown tinged with chocolate ; innermost secondary edged with crimson.

on the outer web; remainder of wing, upper tail-coverts and tail black glossed with purple, and with bronze on the central tail-feathers; rump white posteriorly, blackish next the back; a patch of white under and behind the eye; below ashy vinous-brown, albescent on the middle of the abdomen; under wing-coverts, axillaries and under tail-coverts white.

**Colours of soft parts.** Iris brown; bill greenish horn with a black tip; legs fleshy-brown.

**Measurements.** Total length about 160 mm.; wing 85 to 90 mm.; tail 73 to 77 mm.; tarsus about 17 mm.; culmen 11 to 12 mm.

**Female** differs from the male in having the innermost secondary marked with yellow instead of crimson.

**Distribution.** The Himalayas from Gilgit to Eastern Assam; it has also been obtained in Fokhien and Kuatun in China, and birds from these parts seem hardly separable though they are perhaps a trifle darker. They also seem to have the white patch under the eye obsolete or absent. Birds from Gilgit are pale, but there are only four specimens of these in the British Museum Collection and more material is required before geographical races can be determined.

**Nidification.** Mr. P. Morrison took three Bullfinches' nests in the last week of August on the Tonglo Mountains at about 10,000 feet. The nests were small cups of grass mixed with fine twigs, roots and dried moss, lined with fine black roots and decorated outside with a few scraps of green moss. They were placed quite low down in bushes. They contained three, two and one eggs respectively, very much like those of the Red-headed Bullfinch and measuring about $20{\cdot}2 \times 15{\cdot}1$ mm.

**Habits.** There is very little on record about this bird. It breeds at lofty elvations, probably not under 9,000 feet, possibly much higher than this. A. E. Jones met with small parties at Kumlar Dhor at 11,000 feet in September and thinks it must have been breeding there. Major Hingston shot a female near Dharmsala between 6,000 and 8,000 feet in February. Generally speaking and, as far as is known at present, in voice, food and habits it differs but little from the preceding species.

## (1048) Pyrrhula nipalensis victoriæ.

THE MOUNT VICTORIA BULLFINCH.

*Pyrrhula victoriæ* Rippon, Bull. B. O. C., xvi, p. 47 (1906) (Mt. Victoria, Chin Hills).

**Vernacular names.** None recorded.

**Description.** Similar to the Brown Bullfinch but distinctly greyer above with less of the chocolate tinge. These specimens are singularly close to those obtained in Sikkim.

**Colours of soft parts** as in the preceding form.

**Measurements.** Wing 82 to 85 mm.; tail 68 to 70 mm.

**Distribution.** At present known only from Mt. Victoria and adjoining hills.

**Nidification** and **Habits.** Nothing recorded. Rippon obtained his specimens at about 7,000 feet on the 26th and 31st March.

## Genus PYRRHOPLECTES.

*Pyrrhoplectes* Hodgs. in Gray's Zool. Misc., p. 85 (1844).

Type, by monotypy, *P. epauletta* Hodgs.

The genus *Pyrrhoplectes* contains one species which resembles the Bullfinches in general structure and appearance but has a smaller, less swollen bill and also has the rump concolorous with the lower back. Both sexes have the inner webs of the inner secondaries pure white, a character which separates this Finch from all others found in India.

### (1049) Pyrrhoplectes epauletta.

THE GOLD-HEADED BLACK FINCH.

*Pyrrhula epauletta* Hodgs., As. Res., xix, p. 156 (1836) (Nepal).
*Pyrrhoplectes epauletta.* Blanf. & Oates, ii, p. 207.

**Vernacular names.** *Lho-sampreh-pho* (Lepcha).

**Description.—Adult male.** Anterior crown and nape glistening golden-orange; inner web of inner secondaries white; under wing-coverts white more or less tinged with buff; axillaries and a varying amount of the centre of the abdomen orange-red; remaining plumage black.

**Colours of soft parts.** Iris brown or black; bill horny-brown, blacker on the culmen; legs and feet brown or "olive-brown" (*Forrest*).

**Measurements.** Total length about 140 mm.; wing 75 to 79 mm.; tail 58 to 60 mm.; tarsus about 19 to 20 mm.; culmen about 11 mm.

**Female.** Lores, forehead and front of crown, cheeks and round the eye ashy-grey tinged with yellow, becoming more yellow on the hind crown, nape, sides of head and neck; upper back ashy-brown, grading into chestnut-brown on the wing-coverts, scapulars, back, rump and upper tail-coverts; primary-coverts, wing-quills and tail dark brown, the innermost secondaries chestnut-brown on the outer webs and edged with white inside; under wing-coverts white; axillaries orange-buff; remaining lower plumage paler chestnut-brown.

**The Nestling** resembles the adult female.

**Young males** gradually acquire the adult plumage, retaining a

great deal of chestnut on the under parts and, to a less extent, on the upper for some months.

**Distribution.** Himalayas from the Sutlej to Sikkim; Yunnan.

**Nidification.** Nothing recorded.

**Habits.** Similar to those of the Bullfinches, feeding on berries, seeds etc., which it searches for on trees, bushes and also on the ground. It keeps in Summer to elevations between 10,000 and 15,000 feet.

## Genus **LOXIA.**

*Loxia*, Linn., Syst. Nat., 10th ed. i, p. 171 (1758).

Type, *Loxia curvirostra* Linn.

The genus *Loxia* is represented in India by one geographical race of the typical species. It may be recognized at a glance by the peculiar structure of the bill, in which the tips of the mandibles cross one another. The plumage of the male is principally red, that of the female green.

In *Loxia* the wing is very long, reaching, when folded, almost to the tip of the tail; the nostrils are covered by dense plumelets.

### Loxia curvirostra.

*Loxia curvirostra* Linn., Syst. Nat., 10th ed. i, p. 171 (1758).

Type-locality: Sweden.

*Loxia c. curvirostra* is a bigger, much more brightly coloured bird than our Indian form.

### (1050) **Loxia curvirostra himalayana.**

THE HIMALAYAN CROSSBILL.

*Loxia himalayana* Blyth, J. A. S. B., xiii, p. 952 (1844) (Nepal); Blanf. & Oates, ii, p. 208.

**Vernacular names.** None recorded.

**Description.—Adult male.** Forehead to hind neck scarlet-crimson, with a certain amount of the black bases to the feathers always showing through; back and scapulars brown, each feather edged with red; rump bright scarlet; wing-coverts brown tinged with red and margined with pale rufous; remaining wing-feathers blackish with very narrow rufous edges, often abraded; cheeks and sides of head brown mottled with crimson; lower plumage red, vent and thigh-coverts more brown; under wing-coverts and axillaries ashy-brown washed with red; under tail-coverts brown with broad white edges.

**Colours of soft parts.** "Iris bright hazel. Bill, upper mandible dark horny, lower tinged greenish, under portion dark horny; tarsus brownish horny; claws darker" (*Stevens*).

**Measurements.** Total length about 140 mm.; wing 85 to 92 mm.; tail 50 to 54 mm.; tarsus about 17 mm.; culmen 14 to 18 mm.

**Female.** Upper plumage, wings and tail brown, each feather edged with greyish olive-yellow; rump and upper tail-coverts olive-yellow, the brown bases almost entirely concealed; whole lower plumage dull pale ashy-grey washed with yellow, especially on the breast.

**Young birds** are brown above with broad greyish edges to each feather and suffused with yellow on the lower back and rump; below they are dingy white, boldly streaked, except on the chin, with dark brown and washed with yellow.

**Distribution.** Himalayas from Chini and Lahul to Sikkim and South-East Tibet.

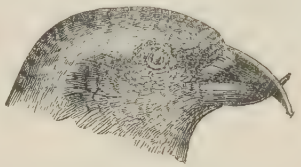


Fig. 31.—Head of *L. c. himalayana.*

**Nidification.** I have in my collection a clutch of five eggs taken in Lahul, Kashmir, at an elevation of about 12,000 feet. They were taken by natives and the details given may not be very correct, but the nest was described as a shallow cup of pine-twigs and roots lined with wool and placed on a stunted pine-tree on the outskirts of Pine forest. The eggs are exactly like those of the English Crossbill and measure about 23·6 × 16·8 mm. They were taken on the 15th May.

**Habits.** The Himalayan Crossbill is a rare bird about which very little is known. In Summer it is found between 10,000 and 15,000 feet, descending in Winter to about 5,000 feet. It is a sociable bird collecting, like most other Finches, in small flocks in the non-breeding season, feeding principally on the seeds of fir-cones. Stevens found it feeding among "huge boulders on the Southern precipitous face" of Sandakphu early in December, February and early March. Mr. O. Lindgren shot some at Tarzum at 5,400 feet.

## Genus **HÆMATOSPIZA.**

*Hæmatospiza* Blyth, J. A. S. B., xiii, p. 951 (1844).

Type, *Hæmatospiza sipahi* Hodgs.

The genus *Hæmatospiza* is closely allied to *Loxia*, the male being red and the female greenish, but it approaches the Rose-Finches

in having a normal-shaped bill though very stout and strong. The wing is long, reaching beyond the middle of the tail. The bases of the feathers of the head and neck are white in both sexes, generally showing through the prevailing colour of red or green.

Gmelin's name, *indica* (Syst. Nat. i, p. 847, 1789), very doubtfully refers to this species and I therefore retain Hodgson's name of *sipahi*.

## (1051) Hæmatospiza sipahi.

THE SCARLET FINCH.

*Corythus sipahi* Hodgs., As. Res., xix, p. 151 (1836) (Nepal).
*Hæmatospiza sipahi.* Blanf. & Oates, ii, p. 209.

**Vernacular names.** *Phanying-pho-biu* (Lepcha); *Labbia-mapho* (Bhut.).

**Description.—Adult male.** Lores, a fine line next the bill and feathers round the eye purple-red; wing and tail-feathers dark brown edged with scarlet; thighs dark brown; under tail-coverts

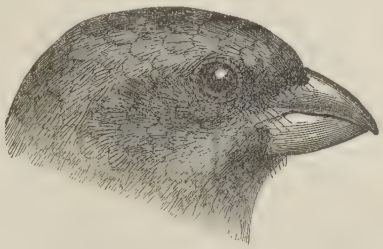


Fig. 32.—Head of *H. sipahi.*

dark brown with broad scarlet tips; axillaries and under wing-coverts ashy with tiny scarlet tips; remainder of plumage brilliant deep scarlet, the bases of the feathers of the head and neck white, elsewhere ashy.

**Colours of soft parts.** Iris brown; bill yellow; legs and feet brown.

**Measurements.** Total length about 190 mm.; wing 94 to 106 mm.; tail 55 to 70 mm.; tarsus 19 to 20 mm.; culmen 13 to 14 mm. The female seems to have a much shorter tail than the male—55 to 66 mm. as against 65 to 70 in the latter.

**Female.** Rump and shorter upper tail-coverts bright yellow; remaining upper plumage, wing-coverts and inner secondaries dark brown with broad edges of olive yellow-green, brightest on the head; wing-quills dark brown with narrow edges of green; tail brown, the lateral feathers with green edges externally; sides of the head, chin and throat like the crown but duller and paler; remaining lower plumage dark brown but this colour almost

entirely concealed by the broad ochre-grey margins; the grey more or less overlaid or smeared with yellow especially on the breast.

**The young male** is like the female but has the rump orange and the yellow-green replaced by dull orange-red on the upper plumage.

**Distribution.** Nepal to the extreme East of the Dafla and Miri Hills in North-East Assam, Khasia Hills and Cachar Hills in the South of Assam.

**Nidification.** Three nests, each with a single egg, were brought to me in Shillong, twice with a parent bird. The nests are bulky cups made outwardly of stiff small twigs and very coarse roots, inwardly of coarse roots and fibrous material and with a lining of fine roots. In one nest there is a little goat's hair, in another a little wool. All three nests were placed well up in pines on the outskirts of Pine-forests. In the Himalayas, North of the Brahmaputra, it probably never breeds as low as 6,000 feet, but in the Khasia Hills a certain number remain and breed at this elevation. The eggs have a pale blue ground-colour and are marked with spots, small blotches and lines of light brown and purplish brown; in one egg these are thinly scattered all over the surface, in a second they form a dense twisted zone at the larger end, and in the third they are paler and scattered fairly numerously everywhere. They measure $22{\cdot}1 \times 17{\cdot}2$, $23{\cdot}2 \times 17{\cdot}0$ and $25{\cdot}4 \times 18{\cdot}0$ mm.

**Habits.** In Summer this Finch seems to keep to Pine-forests above 6,000 feet, except in the Khasia Hills where it breeds in the pines as low as 5,000 feet; in North Cachar it is only a Winter straggler, not breeding. In the Northern Himalayas, on the other hand, Stevens repeatedly obtained specimens in Winter below 2,000 feet, whilst in the mountains South of the Brahmaputra I have never known it to occur below about 4,200 feet, *i. e.* the lower limits of Pine-forests. It is a sociable bird, nearly always being found in small parties of five or six to a dozen. Its flight is swift and powerful, though rather dipping, and its notes are melodious and strong, though I have never heard it really utter any song. It is a very favourite cage-bird with the Khasias and thrives well in captivity. It feeds on seeds, pine-cone seeds, berries and a certain number of insects, especially small coleoptera.

## Genus **PROPYRRHULA**.

*Propyrrhula* Hodgs., J. A. S. B., xiii, p. 1952 (1844).

Type, *P. subhimachala* Hodgs.

This genus again forms a connecting link between the preceding two and the true Rose-Finches. It has the same bill as *Hæmatospiza* and the female is more or less suffused with green, but the tail is longer and the plumage of the male is very close to that of *Carpodacus* and *Propasser*.

## (1052) Propyrrhula subhimachala subhimachala.

THE RED-HEADED ROSE-FINCH.

*Corythus subhimachalus* Hodgs., As. Res., xix, p. 152 (1836) (Nepal).
*Propyrrhula subhimalayensis.* Blanf. & Oates, ii, p. 210.

**Vernacular names.** None recorded.

**Description.—Adult male.** Forehead, supercilium, chin, cheeks and throat crimson; lores dusky brown; crown, neck, back, scapulars and wing-coverts brown with broad dull crimson-red margins to each feather; rump and upper tail-coverts brighter crimson-red; tail dark blackish brown, each feather edged with red; wing-quills brown, edged with red; fore-neck and upper breast crimson, with pale central spots and dark bases making these parts appear mottled; remainder of lower plumage brownish grey, generally paler in the centre of the abdomen and with whitish edges to the under tail-coverts.

**Colours of soft parts.** Iris hazel to crimson-brown; bill fleshy-brown; legs and feet pale brown or fleshy-brown. "Iris stone-brown" (*Stevens*).

**Measurements.** Total length about 200 mm.; wing 92 to 104 mm.; tail 74 to 79 mm.; tarsus 21 to 22 mm.; culmen 12 to 13 mm.

**Female.** Forehead, supercilium and part of the upper breast golden-orange; the rest of the plumage is like that of the male, the red being replaced by olive-yellow.

**The young bird** is like the female.

**Distribution.** Nepal, Sikkim, Bhutan and Miri Hills. In Winter it is found in the Khasia Hills, Cachar and Manipur, and is possibly resident on some of the higher ranges, above 7,000 feet, in these districts.

A very closely allied race, *P. s. intensior* Rothschild, is found in Yunnan and will probably be found in the Shan States. It differs only from the typical form in being a somewhat brighter, deeper crimson in the male and in having less green above and more yellow below in the female. It is of the same size as the typical form.

**Nidification.** Nothing authentic on record.

**Habits.** Very little on record. Stevens obtained it at 10,000 feet in January and April in Sikkim, and Jerdon records it as not uncommon about Darjeeling, presumably in Winter and at about 8,000 feet. I found it a regular visitor to the higher hills of North Cachar and the Khasia Hills in January and February. It kept much to stunted oak, rhododendron and scrub-jungle, haunting the bushes at about 5 to 15 feet from the ground and never, as far as could be seen, visited either the higher trees or the ground. I never heard it utter any notes.

## Genus PYRRHOSPIZA.

*Pyrrhospiza* Hodgs., J. A. S. B., xiii, p. 953 (1844).

Type, *Pyrrhospiza punicea* Hodgs.

This genus approaches the true Rose-Finches yet a step nearer; the females have no green in their plumage beyond a trace on the rump. The males, however, have the abdomen brown-streaked and different to the breast in colour. The bill is like that of *Propyrrhula* but rather longer and more slender. The wings are, comparatively, a little shorter.

## Pyrrhospiza punicea.

*Key to Subspecies.*

A. Darker in all colours, especially above ..... *P. p. punicea*, p. 120.
B. Paler everywhere, especially above ..... *P. p. humii*, p. 121.

### (1053) Pyrrhospiza punicea punicea.

The Red-breasted Rose-Finch.

*Pyrrhospiza punicea* Hodgs., J. A. S. B., xiii, p. 953 (1844) (Nepal); Blanf. & Oates, ii, p. 211 (part).

**Vernacular names.** None recorded.

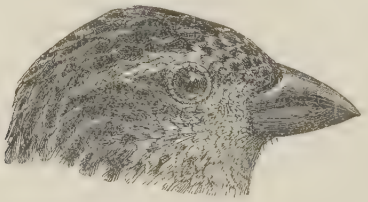


Fig. 33.—Head of *P. p. punicea*.

**Description.—Adult male.** Forehead and short, broad supercilium glistening crimson; rump rosy-red; remaining upper plumage, wing-coverts and tail dark brown, each feather edged with light brown and the lower wing-coverts washed with crimson; lores and a streak through the eye brown, streaked with darker brown; cheeks, ear-coverts, chin, throat and upper breast, sometimes extending on to the lower breast and abdomen, crimson, most of the feathers with white centres and brown bases; abdomen and posterior flanks brown, streaked with blackish; under tail-coverts brown, broadly edged with rosy-white.

**Colours of soft parts.** Iris brown; bill horny to dark brown; legs and feet brown, generally with a fleshy tinge.

**Measurements.** Total length about 190 to 210 mm.; wing 102 to 117 mm.; tail 74 to 83 mm.; tarsus 23 to 24 mm.; culmen about 14 to 15 mm.

**Female.** Whole head and upper plumage dark brown, each feather margined with pale yellowish brown, the edges to those on the rump being yellowish green; lower plumage pale dull fulvous streaked with dark brown and a little more buff on the breast.

**Young birds** are like the female but darker and without the green wash on the rump.

**Distribution.** Nepal, Sikkim; Chambi Valley, Tibet; S.E. Tibet and hills North of the Brahmaputra.

**Nidification.** Not known.

**Habits.** Very little recorded but probably similar to those of the much better-known race next described.

## (1054) Pyrrhospiza punicea humii.

THE WESTERN RED-BREASTED ROSE-FINCH.

*Pyrrhospiza humii* Sharpe, Cat. B. M., xii, p. 433 (1888) (N.W. Himalayas).
*Pyrrhospiza punicea.* Blanf. & Oates, ii, p. 211 (part).

**Vernacular names.** None recorded.

**Description.** Both sexes differ from the Eastern Red-breasted Rose-Finch in being much paler in colour everywhere.

**Colours of soft parts.** "Iris hazel; bill light horny-brown, lower mandible whitish; tarsus black" (*Whitehead*).

**Measurements** the same as in the preceding race; wing 102 to 115 mm.

**Distribution.** From Gilgit, throughout Kashmir to Simla States and Garhwal.

**Nidification.** Whymper found this fine Finch breeding in Garhwal in the Nila Valley, but the nests all had young. Later, Ward's collectors took two nests on the 7th June and 16th July at Chusal, Ladakh, each with two eggs. These are blue, or blue-green in ground-colour with a few spots of black about the larger end and measure about 25·0 × 17·2 mm. The nests were rather shallow cups of roots and coarse grass placed in scrubby thorn-bushes close to the ground. Stoliczka found it breeding in Rupshu, Ladakh, at about 14,000 feet and Whitehead found a nest being built on a ledge of rock at about 14,000 feet in the Khagan Valley.

**Habits.** This is a Finch of high elevations about which very little is known. In Summer it is found between 12,000 and 17,000 feet and in Winter between 9,000 and 12,000 feet. Stoliczka said that in Spiti and Ladakh it was observed "searching after food in the old camping grounds," presumably prospecting droppings for grain. Whitehead found it common between 12,000 and 14,000 feet in a "wild precipitous valley" in the Khagan District, feeding largely on flowers and buds and the male singing short snatches of a soft, erratic, warbling song. Its call-note he remarks sounds like "are you quite ready."

## Genus **PROPASSER**.

*Propasser* Hodgs., in Gray's Zool. Misc., p. 84 (1844).

Type, *Propasser rodochrous* Vigors.

The genus *Propasser* includes the true Rose-Finches, the males of which are characterized by their rose-coloured plumage and the females by their streaked brown plumage without any green or yellow. The bill of *Propasser* is smaller but stouter in shape than that of *Pyrrhospiza*; the wing is rather blunt, the secondaries falling short of the primaries by less than the length of the tarsus; a supercilium is present in both sexes.

*Key to Species.*

A. Supercilium crimson or rose-red.
- *a*. Crown of head broadly streaked with dark brown or blackish.
  - *a'*. Forehead and supercilium rosy-pink with white shaft-lines .... *P. thura*, ♂, p. 123.
  - *b'*. Forehead and supercilium rosy-pink and brown with no shaft-lines ..... *P. pulcherrimus*, ♂, p. 126.
- *b*. Crown of head uniform or with fine dark shaft-lines only.
  - *c'*. Rump rosy-red contrasting with back.
    - *a''*. Scapulars with no rosy-red spots.
      - $a^3$. Wing over 90 mm. ..... *P. rhodochlamys*, ♂, p. 128.
      - $b^3$. Wing under 90 mm.
        - $a^4$. Feathers of back with conspicuous dark centres.... *P. rodochrous*, ♂, p. 129.
        - $b^4$. Back almost uniform dark crimson..... *P. vinaceus*, ♂, p. 133.
    - *b''*. Scapulars with rosy-pink streaks ..... *P. ripponi*, ♂, p. 132.
    - *c''*. Scapulars and inner secondaries with large spots of rosy-red .. *P. rodopeplus*, ♂, p. 130.
  - *d'*. Rump only tinged with rosy-red not contrasting with back ..... *P. edwardsii*, ♂, p. 131.

B. Supercilium buff or ochraceous.
- *c*. Ground-colour of lower plumage not uniform; abdomen whitish ..... *P. thura*, ♀, p. 124.
- *d*. Ground-colour of lower plumage uniform.
  - *e'*. Lower plumage ashy-white, streaked with brown.
    - *d''*. Wing under 90 mm. ..... *P. pulcherrimus*, ♀, p. 127.
    - *e''*. Wing over 90 mm. ..... *P. rhodochlamys*, ♀, p. 129.
  - *f'*. Lower plumage ochraceous-buff, streaked with brown.
    - *f''*. Wing under 80 mm.
      - $c^3$. Upper plumage ashy-brown.. *P. rhodochrous*, ♀, p. 130.
      - $d^3$. Upper plumage ochraceous-brown.
        - $c^4$. Supercilium very faint.... *P. vinaceus*, ♀, p. 133.

$d^4$. Supercilium broad and conspicuous ..... *P. ripponi*, ♀, p. 133.
$g''$. Wing over 80 mm.
$e^3$. Lores and ear-coverts blackish ..... *P. rodopeplus*, ♀, p. 131.
$f^3$. Lores and ear-coverts brown mottled with buff ..... *P. edwardsii*, ♀, p. 132.

## Propasser thura.

*Key to Subspecies.*

A. Lower plumage bright rosy-pink with no purple tint ..... *P. thura thura*, ♂, p. 123.
B. Lower plumage much duller, with strong purple tint.
*a*. Paler above, with narrow dark lines. *P. t. blythi*, ♂, p. 124.
*b*. Darker above, with broader dark lines ..... *P. t. dubius*, ♂, p. 125.
*c*. Very dark above, with very broad dark centres to each feather ..... *P. t. femininus*, ♂, p. 126.
C. Breast very rufous, upper tail-coverts edged with golden-yellow. Above darker ..... *P. t. thura*, ♀, p. 124.
D. Breast not very rufous, tail-coverts golden-yellow, above paler ..... *P. t. blythi*, ♀, p. 124.
E. Breast without any rufous, upper tail-coverts deeper yellow, above intermediate ..... *P. t. dubius*, ♀, p. 125.
F. Breast without any rufous, upper tail-coverts deeper rufous or orange-yellow ..... *P. t. femininus*, ♀, p. 126.

### (1055) Propasser thura thura.

THE NEPAL WHITE-BROWED ROSE-FINCH.

*Carpodacus thura* Bon. & Schl., Mon. Loxiens, p. 21 (1850) (Sikkim).
*Propasser thura*. Blanf. & Oates, ii, p. 213.

**Vernacular names.** None recorded.

**Description.—Adult male.** Lores, cheeks, a line next the base of the bill and face crimson; forehead, broad supercilium, ear-coverts, chin and throat glistening pale pink with white shaft-streaks, the end of the supercilium white; a broad line behind the eye dark brown; sides of neck brown; rump rosy-pink; upper tail-coverts dark brown tipped with pink; remaining upper plumage rich reddish brown with bold central streaks; tail brown, edged paler; wing-coverts dark brown, the lesser edged with rosy, the median with pale buff terminal halves to the outer webs and the bases tinged rosy in fresh plumage; other feathers dark brown, edged pale brown; the innermost secondaries with the edges broader and paler; in fresh plumage the edges to all the feathers have a rosy tinge; axillaries and under wing-coverts

whitish brown; whole lower plumage rosy-pink; the under tail-coverts with black centres and bases.

**Colours of soft parts.** Iris dark brown; bill pale horn-colour; tarsus fleshy-grey (*C. H. T. Whitehead*).

**Measurements.** Total length about 170 mm.; wing 80 to 85 mm.; tail 69 to 73 mm.; tarsus 24 to 25 mm.; culmen about 11 to 12 mm.

**Female.** Supercilium and forehead buff streaked with black; rump brown edged with golden-yellow; remaining upper parts and wings like those of the male without any rosy markings and the buff wing-markings darker; lores darker brown; cheeks and ear-coverts buff with black streaks; chin dull white changing to rufous on throat, breast and flanks; abdomen paler, almost white on the centre: the whole of the underparts from throat to under tail-coverts boldly streaked with black.

**Distribution.** Garhwal, Simla Hills, Nepal, Sikkim and West Tibet.

**Nidification.** Whymper found this fine Finch breeding in the Nila Valley, Garhwal, in August at about 15,000 feet. The nest he describes as exactly like that of *Propasser pulcherrimus* but larger, a shallow cup made of coarse grass and roots lined with hair and placed low down in a Juniper bush. The eggs, three or four in number, are a deeper blue than are any other *Carpodacus* or *Propasser* eggs within my own knowledge and are sparsely spotted with black or purplish-brown. In shape they are rather broad ovals and they measure about 22·3 × 16·0 mm.

**Habits.** This is a Finch of the highest elevations. The Mt. Everest Expedition obtained it between 16,000 and 17,500 feet, Blanford at 14,000 in the Ghola range and Whymper from 15,000 up to the highest points in Garhwal. Winter records are but few and none below 8,800 feet. It appears to be gregarious in this latter season and to feed much on the ground on seeds and berries. Stevens says "there are few more delightful sights than to watch a party of these Rose-Finches flitting about the Rhododendron trees when the vegetation and ground is covered with a mantle of snow."

## (1056) Propasser thura blythi.

THE KASHMIR WHITE-BROWED ROSE-FINCH.

*Propasser blythi* Biddulph, Ibis, 1882, p. 283 (Gilgit).
*Propasser thura.* Blanf. & Oates, ii, p. 213 (part).

**Vernacular names.** None recorded.

**Description.—Male.** Differs from the preceding race in being much paler above, a duller brown with finer streakings; below the rosy colour is much duller with a distinct purplish tinge.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 84 to 85 mm.; tail 73 to 75 mm.; tarsus 23 to 24 mm.; culmen about 11 to 12 mm.

**Female** similar to that of the Nepal White-browed Rose-Finch but paler; below there is much less rufous.

**Distribution.** Afghan and Baluchistan frontier, Gilgit and North Kashmir.

**Nidification** unknown.

**Habits.** Those of the genus as far as is recorded.

## (1057) Propasser thura dubius.

THE KANSU WHITE-BROWED ROSE-FINCH.

*Carpodacus dubius* Przewalsky, Mon. Strang. Tangut., ii, p. 92 (1876) (Alaschan).
*Propasser thura.* Blanf. & Oates, ii, p. 213 (part).

**Vernacular names.** None recorded.

**Description.—Male.** Above similar to the Nepal bird but a little paler; below a much duller pink with a purple tinge as in the Kashmir race.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 83 to 85 mm.

**Female.** Much paler than the Kashmir bird and with no rufous on the throat and breast, the underparts being white merely tinged with fulvous very broadly streaked with blackish.

**Distribution.** E. Tibet and N.W. China. A not uncommon Winter visitor to Eastern Assam.

**Nidification.** A number of nests and eggs of this bird were obtained for me by Mr. D. Macdonald and his son, some at Phari, 15,000 feet, some North-East of Gyantse between 14,000 and 16,000 feet. The birds sent with them appear all to be of this race. The nests were shallow, wide cups of coarse grass-stems, roots, and fibrous material, strips of, apparently, bark, lined with hair, fur or wool. They were placed low down in thorny bushes, Juniper or Rose bushes, in some instances actually on the ground. The eggs are not distinguishable from those of *P. thura thura*.

**Habits.** "We obtained these birds in Alan-shan and Kansu, in the wooded mountainous districts, usually on plains and in thickets on the shores of rivers, occasionally, also, in the juniper bushes, as high as the alpine regions. The song is very weak but the call-note, which it utters on the approach of danger or otherwise, consists of an unpleasant note something like 'brijj, brijj, brijj.'" (Rowley's Misc. p. 302.)

## (1058) Propasser thura femininus.

THE YUNNAN WHITE-BROWED ROSE-FINCH.

*Carpodacus femininus* Rippon, Bull. B.O.C. xix, p. 31 (1906) (W. Yunnan).

**Vernacular names.** None recorded.

**Description.—Male.** The darkest of all the forms above and with the lower surface a dull, almost purple-pink.

**Colours of soft parts.** Iris brown; bill grey-brown, the lower mandible lightest; feet dark brown or olive-brown (*Forrest*).

**Measurements** the same as in the other races.

**Female.** The darkest of all the races and distinguishable at once by the deep rufous-gold of the upper tail-coverts.

**Distribution.** Yunnan. A female obtained by Harington in the Shan States with "deep red upper tail-coverts" must have been of this subspecies.

**Nidification** unknown.

**Habits.** Obtained by Forrest on the Lichiang range between 11,000 and 14,000 feet in Pine-forests.

## Propasser pulcherrimus.

*Key to Subspecies.*

A. Lores brown; cheeks and ear-coverts pink much marked with brown ..... [p. 126. *P. p. pulcherrimus*, ♂,

B. Lores, cheeks and ear-coverts glistening pink with no brown markings ..... [p. 127. *P. p. davidianus*, ♂,

C. Upper plumage darker; edges of inner secondaries more rufous-brown ..... [p. 127. *P. p. pulcherrimus*, ♀,

D. Upper plumage paler; edges of inner secondaries pale creamy-white ..... [p. 128. *P. p. davidianus*, ♀,

## (1059) Propasser pulcherrimus pulcherrimus.

THE BEAUTIFUL ROSE-FINCH.

*Propasser pulcherrimus* Blyth, Cat. Birds Mus. E. I. Co., ii, p. 460 (1858) (Nepal); Blanf. & Oates, ii, p. 215.

**Vernacular names.** *Golabi Tuti* (Hind.).

**Description.—Male.** Some feathers of the forehead, a long supercilium, cheeks, ear-coverts and chin bright rosy-red, but with the black-brown bases of the feathers showing through everywhere; upper plumage ashy-brown with broad central streaks of blackish brown, the head dark and tinged with rosy; lower rump pale rosy; shorter upper tail-coverts rosy-red with black shafts, longer coverts with brown tips; wing-coverts dark brown edged with ashy-rufous; primaries and outer secondaries narrowly edged with ashy-rufous; inner secondaries broadly edged with

the same and paler at the tips; flanks brown with broad black streaks; remaining lower plumage rose-red; the under tail-coverts with dark centres.

Many birds, possibly young, have the feathers of the breast and abdomen with black shafts.

**Colours of soft parts.** Iris dark brown; bill horny-brown, the lower mandible paler; legs rosy flesh-colour or rosy-horny.

**Measurements.** Total length about 155 mm.; wing 76 to 80 mm.; tail 62 to 64 mm.; tarsus about 20 mm.; culmen 10 to 11 mm.

**Female.** An indistinct but rather broad supercilium pale fulvous; remaining upper plumage fulvous-brown broadly streaked with dark blackish brown; whole lower plumage fulvous-white, streaked with dark brown.

**Distribution.** Himalayas, Kuman to Sikkim and West Tibet. I can find no character by which it is possible to distinguish Hume's *ambiguus* from the typical form.

**Nidification.** The Beautiful Rose-Finch breeds between 10,000 and 15,000 feet, generally below 14,000 and, according to Stoliczka, sometimes as low as 7,000 feet during July and August, more rarely in June. It makes a compact, rather deep nest of grass, roots, the fibrous bark of the Juniper and, occasionally, a few small twigs, well lined with hair or fur. The site selected is one low down in a bush, preferably a thorny one, in scrub-jungle. The eggs number three to five and are a bright Hedge-Sparrow's egg blue, sparsely speckled and dotted at the larger end with black. Often there are one or two bold black spots larger than the rest. One hundred eggs average 19·5 × 14·6 mm.: maxima **21·2 × 15·0** mm.; minima **17·6** × 14·0 and 18·7 × **13·6** mm.

Whymper says that it is a very close sitter once incubation commences.

**Habits.** In Summer this Finch keeps generally to heights from 12,000 feet up to the snow-line, in Winter descending to at least 7,000 feet. It is said to be a rather tame and confiding bird, associating in flocks of considerable size and frequenting both forests and steep hill-sides covered with scrub-jungle. It is credited with rather a sweet little song in the breeding-season.

## (1060) Propasser pulcherrimus davidianus.

THE CHINESE BEAUTIFUL ROSE-FINCH.

*Carpodacus davidianus* Milne-Edw., N. Arch. du Mus., i, p. 19 (1864) (North-East China).
*Propasser pulcherrimus.* Blanf. & Oates, ii, p. 215 (part).

**Vernacular names.** *Do-di* (Tibetan); *Pegam-bejée* (Gyantse).

**Description.—Male.** Differs from *P. p. pulcherrimus* in having the lores, cheeks, forehead and ear-coverts glistening rosy-red

with no black marks showing; the crown is far more suffused with rosy; the rump-band seems wider and the upper plumage is more ashy, less rufous.

**Colours of soft parts.** "Iris rosy-brown; bill horny-brown, the lower mandible greyish; the feet rosy-grey" (*David*).

**Measurements.** About the same as in the preceding bird. Wing 72 to 84 mm.

**Female.** Season for season is paler; more grey, less rufous above and more grey, less fulvous below than the female of *P. p. pulcherrimus*.

**Distribution.** Eastern Tibet, Bhutan, Hills North of Brahmaputra, Yunnan and China from Szechuan to Tsinling and Shensi. I cannot separate Sharpe's *Propasser p. waltoni* from *P. p. davidianus*, which latter form was practically unrepresented in the British Museum when Sharpe named *waltoni*.

**Nidification.** This Finch breeds in great numbers all over the Southern and Eastern plateaus of Thibet between 12,000 and 17,000 feet. Nests and eggs are indistinguishable from those of the preceding bird. Seventy eggs average 19·9 × 14·2 mm.; maxima **22·0** × 14·3 and 21·0 × **15·0** mm.; minima **17·9** × **13·1** mm.

**Habits.** Those of the preceding bird.

## Propasser rhodochlamys.

*Pyrrhula rhodochlamys* Brandt, Bull. Sci. Acad. Imp. St. Petersb. p. 27 (1843).

Type-locality: Altai.

Differs from *P. rhodochlamys grandis* in having the feathers across the whole of the forehead glistening rosy-pink, whereas the Indian bird has the centre of the forehead concolorous with the crown. It is also rather smaller; wing 86 to 91 mm.

## (1061) Propasser rhodochlamys grandis.

THE RED-MANTLED ROSE-FINCH.

*Carpodacus grandis* Blyth, J. A. S. B., xviii, p. 810 (1849) (Tyne Range above Simla).
*Propasser grandis*. Blanf. & Oates, ii, p. 216

**Vernacular names.** None recorded.

**Description.—Adult male.** A broad supercilium from the base of the bill to the nape pale shining rosy, the feathers pointed and rather stiff; lores and a line behind the eye rosy-brown; upper plumage, wing-coverts and edges of quills rosy-brown, the head, neck and back streaked with dark brown; rump purer rosy, without streaks; tail dark brown with rosy edges; sides of the head, neck, chin and throat like the supercilium; remainder of lower plumage rosy-red, the younger birds, as usual, showing signs of black shafting; under wing-coverts and axillaries rosy-white.

**Colours of soft parts.** Iris light brown or rosy-brown; bill pale horny-brown, a little darker on the culmen and still paler on the lower mandible; legs and feet horny-pink to deep flesh-colour.

**Measurements.** Total length about 175 mm.; wing 92 to 95 mm.; tail 71 to 80 mm.; tarsus about 24 mm.; culmen about 14 to 15 mm.

**Female.** Whole upper plumage pale ashy-grey, broadly streaked with dark brown; tail brown, the feathers with narrow pale margins; below pale ashy-white, sometimes tinged with buff on the breast, and broadly streaked with brown throughout; most specimens show indications of a pale grey supercilium; in a few it is well defined, but in a few others absent altogether.

**Distribution.** The whole of the Himalayas from Afghanistan, Baluchistan and Gilgit to Kuman and Garhwal. There is also a single specimen collected by Mandelli from Sikkim.

Birds from Ferghana and Samarkand are somewhat intermediate between *P. r. rhodochlamys* and *P. r. grandis*, but perhaps nearer the latter. This is the form which has been separated as *P. r. kotschubeii* (Sarudny, Mess. Orn., 1913, p. 165: Ferghana).

**Nidification.** Nothing recorded, but it certainly breeds at lofty elevations in Northern Kashmir, probably between 13,000 and 16,000 feet and Meinertzhagen also records it as breeding near Quetta.

**Habits.** This is a Finch of high Summer elevation, but comes down to 6,000 feet in Winter and to 7,000 feet not uncommonly, though it is said to be rather erratic in its movements. Ziarat, near Quetta, where Meinertzhagen believes it to breed, is about 8,000 feet altitude.

## (1062) **Propasser rodochrous.**

THE PINK-BROWED ROSE-FINCH.

*Fringilla rodochroa* Vigors, P. Z. S., 1830, i, p. 23 (Himalayas, Simla–Almora Districts).
*Propasser rhodochrous.* Blanf. & Oates, ii, p. 217.

**Vernacular names.** *Gulabi Tuti* (Hind. in Nep.); *Gulabi chiryia* (Nep. Plains).

**Description.—Adult male.** Lores, a broad band behind the eye, and the crown brownish crimson; forehead and supercilium pale rosy-red; rump rosy-red; upper tail-coverts darker rosy; remaining upper plumage pale brown, suffused with dark rose and marked with bold broad streaks of blackish brown; tail brown with rosy-brown edges; wing-feathers dark brown edged with rosy-brown, the innermost secondaries with paler, broader external margins; whole lower plumage rose-red, the sides of the head paler and more glistening; under wing-coverts and axillaries pale rosy-ashy.

**Colours of soft parts.** Iris red-brown; bill dark brown, the lower mandible paler; legs and feet dark brown.

**Measurements.** Total length about 150 mm.; wing 71 to 75 mm.; tail 58 to 62 mm.; tarsus about 19 to 20 mm.; culmen about 10 to 11 mm.

**Female.** Whole upper plumage ashy rufous-brown with broad dark brown streaks, obsolete on the rump and upper tail-coverts, which are more ochraceous: wing-feathers and tail dark brown edged with pale rufous-brown; below ochraceous buff, paler on chin and throat, streaked throughout, except on the centre of the abdomen, with dark brown.

**Young males** are like the females.

**Distribution.** Himalayas from Kashmir and Dharmsala to Nepal.

**Nidification.** Breeds throughout Garhwal, Kuman, Kashmir and Ladakh at suitable elevations over 10,000 feet and up to 17,000 feet. Whymper took many nests in Garhwal, where it was very common, and describes them as not distinguishable from those of *P. p. pulcherrimus*, being placed in similar sites. Fortunately both species are very close sitters and afford easy observation before they leave their nests, so they are not difficult to identify. The breeding-season is from the middle of July to the end of August.

The eggs, of which four or five are laid, cannot be distinguished from those of the Beautiful Rose-Finch, but are rather broader in proportion, rather smaller and, on an average, better marked, they also more often have little scriggly lines of black in addition to spots and specks. One hundred eggs average 18·8 × 14·2 mm.: maxima **21·2** × 14·8 and 20·6 × **15·0** mm.; minima **17·3** × 14·3 and 17·9 × **13·3** mm.

**Habits.** Very similar to those of the Beautiful Rose-Finch. Whistler found it haunting clumps of Kharshu Oak on the Duala Dar and records it as low as 4,000 feet in Winter, when they collect in flocks.

## (1063) Propasser rodopeplus.

THE SPOTTED-WINGED ROSE-FINCH.

*Fringilla rodopepla* Vigors, P. Z. S., 1830–1, p. 23 (Simla–Almora Districts).
*Propasser rhodopeplus.* Blanf. & Oates, ii, p. 217.

**Vernacular names.** *Gulabi Tuti* (Hind. in Nep.).

**Description.—Adult male.** Cheeks and a broad supercilium shining rosy-pink; lores, ear-coverts and upper plumage deep crimson-brown, the feathers centred still darker and those of the lower back and the scapulars streaked with rosy-pink; rump-feathers tipped rosy; wing-feathers brown edged with crimson-brown; median coverts tipped with rosy-pink; greater coverts and inner secondaries with a rosy spot at the tip on the outer

web; whole lower plumage dark rosy-red, showing a few black shaft-lines; the feathers of the chin and throat pointed and tipped with glistening pink.

**Colours of soft parts.** Iris brown; bill horny-brown, paler on the lower mandible; legs and feet pale brown or fleshy-brown.

**Measurements.** Total length about 170 mm.; wing 82 to 90 mm.; tail 67 to 74 mm.; tarsus about 23 mm.; culmen about 13 to 14 mm.

**Female.** Whole upper plumage ashy ochre-brown, each feather centred with dark brown; wing-coverts and inner secondaries like the back, the primary-coverts darker brown with no pale edges or spots; the inner secondaries broadly marked on the outer web with ochre; a broad supercilium ochre-buff; lores and ear-coverts dark blackish brown; whole lower plumage rich buff streaked throughout with black.

**Distribution.** The Himalayas from Mussoorie through the Simla Hills, Garhwal and Nepal to Sikkim.

**Nidification.** Whymper found this fine Rose-Finch breeding in Garhwal, and his collectors took three nests containing four, four and five eggs respectively. They are of the usual Rose-Finch character but of a deeper blue ground-colour than any other known eggs of the larger species. They measure from 21·0 × 16·0 mm. to 23·3 × 17·1 mm. They were taken between 10,000 and 11,000 feet.

**Habits.** A Rose-Finch of elevations between 10,000 and 15,000 feet and apparently not descending much lower in Winter.

## Propasser edwardsii.

*Carpodacus edwardsii* Verr., Nouv. Arch. Mus., vi, Bull., p. 30 (1870).

Type-locality: Chinese Tibet.

The Indian bird differs from that found in Kansu and Eastern Tibet in being darker and more richly coloured.

## (1064) Propasser edwardsii saturatus.

THE NEPAL LARGE ROSE-FINCH.

*Carpodacus edwardsii saturatus* Hartert, Vög. Pal., p. 2058 (1921) (Nepal).
*Propasser edwardsi.* Blanf. & Oates, ii, p. 218.

**Vernacular names.** None recorded.

**Description.—Adult male.** A broad supercilium glistening pink; forehead mixed pink and crimson-brown; lores, sides of head, crown and nape deep crimson-brown with black shaft-lines; back and wings blackish brown edged with rufous-brown washed with crimson; the coverts and inner secondaries tipped with pale rosy-brown; rump and upper tail-coverts rufous-brown unstreaked

with black, faintly washed with crimson; lower cheeks, chin and throat pink with black shafts; breast and flanks rosy-brown, the abdomen and vent bright rosy-pink; the under tail-coverts duller and the whole under surface with fine black shaft-lines.

**Colours of soft parts.** Iris brown; bill horny-brown, the culmen darker and lower mandible paler.

**Measurements.** Total length about 165 mm.; wing 77 to 83 mm.; tail 64 to 66 mm.; tarsus about 23 mm.; culmen about 12 to 13 mm.

**Female.** Very like the female of *P. rodopeplus*, but has the supercilium darker and less well-defined; the lores and ear-coverts are a lighter brown and the streaks on the breast and abdomen are much finer.

**Distribution.** Himalayas from Nepal to Eastern Assam and Tibet. Walton and Stevens also obtained it in Sikkim.

**Nidification.** Nests and eggs of this species have been taken for me in July and August in Tibet, at 12,000 to 14,000 feet above Gyantse and at 15,000 feet near Phari. The nests are like large nests of *Propasser p. davidianus*, wide cups of dry grass and roots lined with Antelope's and Musk-deer hair. The three found were all taken low down in bushes, probably wild-rose bushes. The eggs are typical Rose-Finches', but paler than those of the preceding bird and more feebly speckled and spotted with black or deep purple. They measure about $23{\cdot}0 \times 16{\cdot}8$ mm.; but a large series would probably decrease these measurements.

**Habits.** Those of the genus, though there is practically nothing on record. In Tibet it is evidently a very rare bird and in most years my collectors have failed to meet with it. Apparently in Summer it keeps between 13,000 and 17,000 feet. Stevens found it as low as 8,000 feet in March, but in April he obtained it in dense bamboo jungle at 10,000 feet when the snow was still heavy at this elevation. They were feeding on the ground but took refuge in trees and bamboos when disturbed.

## (1065) Propasser ripponi.

SHARPE'S ROSE-FINCH.

*Carpodacus ripponi* Sharpe, Bull. B. O. C., xiii, p. 10 (1902) (W. Yunnan).

**Vernacular names.** None recorded.

**Description.—Adult male.** A broad supercilium glistening pink, the feathers tipped almost white; head, back and upper tail-coverts very deep rich crimson-brown; the feathers of the back and scapulars with blackish centres and rosy-pink streaks; rump rosy-pink; tail brown edged with dull crimson-brown; wing-coverts dark brown, all but the primary-coverts edged with dull crimson-brown; innermost secondaries edged with rosy-pink; lores and a broad line below and behind the eye crimson-brown;

ear-coverts, cheeks, chin and throat glistening pink, the crimson bases often showing through; the whole lower parts crimson-pink, tinged with purple; axillaries and under wing-coverts white, tinged with pink.

**Colours of soft parts.** Iris brown; bill horny or greyish brown, lower mandible paler; legs and feet brown (*Forrest*).

**Measurements.** Total length about 150 mm.; wing 72 to 75 mm.; tail 68 to 71 mm.; tarsus about 21 mm.; culmen about 10 mm.

**Female.** Upper parts fulvous-brown, each feather dark-centred; wing-feathers black with rufous-brown edges, the innermost secondaries with paler, more conspicuous buff outer webs; a broad pale buff supercilium; lores and a broad line through the eye dark brown; cheeks, ear-coverts and lower plumage warm ochre-buff, boldly streaked with black, the broad streaks decreasing to narrow shaft-lines on the abdomen.

**Distribution.** Shan States and Yunnan.

**Nidification and Habits.** Nothing recorded. Forrest obtained it both in Pine-forests and open scrub between 8,000 and 14,000 feet in Yunnan.

## (1066) Propasser vinaceus vinaceus.

THE VINACEOUS ROSE-FINCH.

*Carpodacus vinaceus* Verr., Nouv. Arch. Mus., vi, Bull. p. 39 (1870) (Chinese Tibet).

**Vernacular names.** None recorded.

**Description.—Male.** A supercilium glistening pale pink; whole upper surface deep crimson, rather brighter on the head; lores and feathers round the eye dusky-crimson; wing-feathers black edged with crimson, the inner secondaries with conspicuous pale pink tips to the outer webs; tail blackish brown edged with crimson; whole lower plumage crimson, brighter than the back, with fine black shaft-lines, obsolete in old birds; axillaries and under wing-coverts brownish crimson.

**Colours of soft parts.** Iris golden brown; bill brown, paler at the base and on the lower mandible; legs and feet brown (*Goodfellow*). Iris dark brown (*Forrest*).

**Measurements.** Total length about 150 mm.; wing 69 to 71 mm.; tail about 58 mm.; tarsus about 20 mm.; culmen about 10 to 11 mm.

**Female.** Above ochraceous brown with darker centres, not very conspicuous; wings and tail blackish brown edged with ochraceous brown, the innermost secondaries with broad buff margins to the outer webs; lower plumage rather brighter and lighter than the back, the throat and upper breast with fairly broad black median streaks, the lower breast and abdomen only

finely streaked. A few females show slight indications of a buff supercilium.

**Distribution.** Szechuan, Kansu, Yunnan in W. China, and Shan States. Harington obtained it in the Bhamo District. *C. v. formosanus* is a bigger bird, measuring in the wing 74 to 79 mm.

**Nidification.** Unknown.

**Habits.** In Yunnan Forrest found this Rose-Finch frequenting both pine-forests and thickets at an elevation between 8,000 and 9,000 feet during August and September and at 11,000 feet in July.

## Genus CARPODACUS.

*Carpodacus* Kaup, Natürl. Syst., p. 161 (1829).

Type, *Carpodacus erythrinus* Pall.

The genus *Carpodacus* is now often incorporated with *Propasser* but the differences in the two genera are constant and, as each genus contains a considerable number of species, it seems convenient and therefore wise to maintain them both.

*Carpodacus* differs from *Propasser* in having a longer and more pointed wing, the secondaries falling short of the tip of the wing by a distance greater than the length of the tarsus, and in having no supercilium.

*Key to Species.*

A. Wing under 90 mm. ..... *C. erythrinus*, p. 134.
B. Wing over 100 mm.
*a*. Generally speaking much darker; ear-coverts and sides of the head crimson .... *C. rubicilla*, p. 138.
*b*. Much paler in general tint; ear-coverts and sides of head bright pink ..... *C. severtzovi*, p. 139.

### Carpodacus erythrinus.

*Loxia erythrina* Pall., Nov. Comm. Petrop., xix, p. 587 (1770).

Type-locality: South Russia.

This is a species which has an enormous breeding area over Eastern Europe and practically the whole of Asia North of the Himalayas and the North-Central Chinese mountains. In Winter, the breeding finished, all these birds migrate South and much overlapping occurs of the various races which are quite distinguishable when on their own breeding-grounds.

The typical form *C. e. erythrinus* breeds in Central Europe and in Siberia as far East as the Lena. East of this we have a form, *C. e. grebnitskii* (Stejneger, Bull. U.S. Nat. Mus., 1885, p. 265), which is a little darker and is suffused with rose-red on the abdomen to a greater extent. This evidently migrates into North and East China in Winter and possibly breeds as far South as the mountains North of Pekin. In Asia Minor and the Mountains of Central Asia there breeds a third form, *C. e. kubanensis*, still

darker above, both in the reds and the browns and below in the extension of the red. Many specimens found in India in Winter, especially in the North-West, are of this form and the birds breeding in Gilgit and on the Afghan Frontier seem also referable to this race. Finally we have a fourth form, *C. e. roseatus*, a very deep richly coloured bird which breeds throughout the Himalayas from Kashmir and Kuman East to the Northern and high Central mountain-ranges of China, wandering South in Winter. Of these four forms three certainly occur in Winter in India, but the fourth, *grebnitskii*, is not likely to be found even so far West as Burma.

*Key to Subspecies.*

A. Palest, both above and below; in males the rose-colour of the underparts confined to chin, throat and breast ..... *C. e. erythrinus*, p. 135.
B. Intermediate in colour; whole of the abdomen more or less suffused with rosy in the males ..... *C. e. kubanensis*, p. 136.
C. Darkest both above and below, the red very rich and deep ..... *C. e. roseatus*, p. 137

## (1067) Carpodacus erythrinus erythrinus.

THE COMMON ROSE-FINCH.

*Loxia erythrina* Pall., Nov. Comm. Petrop., xiv, p. 587 (1770) (South Russia).
*Carpodacus erythrinus.* Blanf. & Oates, ii, p. 219.

**Vernacular names.** *Tuti* or *Lal Tuti* (Hind.).

**Description.—Adult male.** Forehead, crown and nape crimson; back and scapulars light crimson-brown, the feathers edged with light olive-brown; wing-coverts light brown edged with rufous-pink; quills brown edged with olive-brown; lower back and rump rosy-red; tail brown edged with rufous-pink; lores and a line through the eye rufous-brown; ear-coverts mixed brown and crimson; chin, cheeks, throat and upper breast bright crimson, paler on the lower breast and flanks and albescent on the abdomen, vent and under tail-coverts; axillaries and under wing-coverts ashy, tinged and edged with pink.

When freshly moulted and before the brown edges to the feathers have begun to wear away the whole tone is less bright, more brown and less crimson.

**Colours of soft parts.** Iris dark brown or hazel-brown; bill horny-brown, darkest on the culmen, palest at the base; legs and feet dusky-brown.

**Measurements.** Total length about 165 mm.; wing 83 to 86 mm.; tail 55 to 60 mm.; tarsus about 17 mm.; culmen 9 to 10 mm.

**Female.** Whole upper plumage olive-brown, obsoletely streaked with darker brown, often hardly showing except on the head; the

median and greater coverts and inner secondaries broadly tipped with very pale ochraceous; underparts dull olive-white, the sides of the chin and throat and the breast streaked with brown; under wing-coverts and axillaries pale ochraceous grey.

**Young males** are like the females and often breed in this plumage.

**Distribution.** Breeding in Eastern Europe and Siberia as far East as the Lena. In Winter South to the whole of Europe, and in Asia South to India. There is one very typical specimen of this race in the British Museum from Agrore and other specimens from the North-West which also seem nearest to this race.

**Nidification.** This bird does not breed anywhere within our area. In Eastern Europe and Western Asia it breeds during May and June, making a loose, cup-shaped nest of grass and roots, lined with hair and placed low down in bushes either in scrub-jungle or in the open. The eggs, four to six in number, are of the usual blue of this genus, rather paler than most, spotted and speckled with blackish and very often with light reddish. Typically eggs of the *C. erythrinus* group are paler, less boldly and darkly spotted than those of the *P. pulcherrimus* group. Witherby in his 'Handbook of British Birds' gives the average of eighty-six eggs as 20·5 × 14·29 mm.

The breeding-season lasts from late May to early July.

**Habits.** The Common Rose-Finch is found in open country or in thin bush-cover and often frequents the vicinity of villages and habitations. In Winter it assembles in very big flocks and these are often composed entirely of one sex. The food consists of berries and seeds and, to a less extent, of shoots and buds. The notes are pleasant and in the breeding-season the male has a sweet Bullfinch-like song.

## (1068) Carpodacus erythrinus kubanensis.

THE CAUCASUS COMMON ROSE-FINCH.

*Carpodacus erythrinus kubanensis* Laub., Verh. Orn. Gesellsch. Bayern, xii, p. 93 (1914) (Kuban Dist., Caucasus).
*Carpodacus erythrinus.* Blanf. & Oates, ii, p. 219 (part).

**Vernacular names.** *Tuti, Lal Tuti* (Hind.).

**Description.** Similar to the preceding form but, sex for sex, more richly and darkly coloured, the underparts being more completely suffused with rosy.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 83 to 87 mm.

**Distribution.** Breeding in the Caucasus and Asia Minor, Altai, Turkestan, Afghanistan, Gilgit and North-Western Kashmir. In Winter South to North-West India. A very large number of specimens in the British Museum obtained in this part of India seem referable to this form rather than to *C. e. roseatus*.

**Nidification.** This race breeds in great numbers on the North-West Frontier of India and Afghanistan to Gilgit. Whitehead and Harington took many nests in the Khagan Valley during June and early July. These are described by them as made of twigs, lined first with roots and then with hair, placed low down in bushes, generally "Janulla" bushes, in bush-jungle, sometimes in bushes in the open. The eggs are like those of the preceding bird but unspotted blue eggs are not uncommon. Fifty eggs average 20·4 × 15·0 mm.: maxima **23·2** × 14·8 and 21·1 × **15·5** mm.; minima **18·7** × 14·8 and 19·1 × **13·2** mm.

Whitehead says that this bird is a very close sitter, allowing itself to be almost caught before it will leave its nest.

**Habits.** This Rose-Finch is migratory, covering a great portion of the North-West of India in the Winter but not going so far South or East as the next form. Whistler's notes in the Bombay Nat. Hist. Journal under the heading of *C. e. roseatus* refer to all these races and I can trace no movement of this form beyond Sind, North-West Frontier Provinces and the Punjab. It assembles in very large flocks when on migration, at which time it often does considerable damage in orchards by destroying buds. The flocks frequently consist of one sex only. It has a rather sweet but loud and monotonous song.

## (1069) Carpodacus erythrinus roseatus.

THE COMMON INDIAN ROSE-FINCH or HODGSON'S ROSE-FINCH.

*Pyrrhulinota roseata* Hodgs., P. Z. S., 1845, p. 36 (Nepal).
*Carpodacus erythrinus.* Blanf. & Oates, ii, p. 219 (part).

**Vernacular names.** *Tuti*, *Lal Tuti* (Hind.); *Amonga-Tuti* (Nep.); *Chota Tuti* (Sylhet); *Phulin-pho* (Lepcha); *Yedru-pichike*, *Yedru-jinowayi* (Tel.); *Dao-gajaviaba* (Cachari); *Ingérui* (Naga); *Do-di-ma-mo* (Tibet).

**Description.** In both sexes the colours are darker and richer than in any of the other races; the brown is darker above and more suffused with deep crimson; the crown is much darker crimson; the rump is crimson rather than rosy-pink and the whole lower parts suffused with crimson-pink, even to the under tail-coverts.

**Measurements.** Wing 83 to 87 mm.

**Females** and **young males** are darker below and much more heavily streaked than in the other races.

**Distribution.** Breeding in the Himalayas from Kuman, Garhwal and Nepal to East Tibet and thence into Yunnan, Shan States and West and Central Chinese mountain-ranges. The Rose-Finch breeding in Ladakh and South-West Kashmir appears also to be of this race. In Winter this bird is found over the whole of India as far South as North Travancore; in Burma as far South as Tenasserim; Siam and the Indo-Chinese countries and South China.

**Nidification.** Hodgson's Rose-Finch breeds in great numbers from Ladakh to Garhwal in suitable localities, and Eastwards in lessening numbers to Sikkim, Eastern Tibet and the Chinese mountains. The only point of difference in nidification between this and the preceding race is that the present one uses grass only for the outer construction of the nest. It breeds during July and August: in Garhwal between 10,000 and 12,000 feet, and in Ladakh between 9,500 and 13,000 feet. The eggs are like those of the other races. Sixty eggs average 20·8 × 14·6 mm.: maxima **22·0** × 15·1 and 21·0 × **15·2** mm.; minima **18·7** × 14·5 and 22·1 × **13·7** mm.

**Habits.** Hodgson's Rose-Finch migrates in Winter to the plains of India, Burma and Indo-Chinese Countries. In India it is found South as far as Travancore and in Burma it occurs practically in every part of the country. In habits generally it differs in no way from the other races.

## Carpodacus rubicilla.

*Loxia rubicilla* Güldenstädt, Nov. Comm. Petrop., xix, p. 463 (1775).

Type-locality: Caucasus.

## (1070) Carpodacus rubicilla rubicilloides.

THE KANSU GREAT ROSE-FINCH.

*Carpodacus rubicilloides* Pzew., Mongol. Stran. Tangut., ii, p. 90, pl. xii (1876) (Kansu).

**Vernacular names.** *Awal-luk-si* (Tibet).

**Description.—Adult male.** Crown, nape, sides of the head, ear-coverts, chin and throat brilliant crimson, each feather with a narrow, pointed white stripe; lores and under the eye immaculate crimson; hind neck rosy-ashy, streaked with dark brown; back, scapulars and wing-coverts dark brown edged with rosy-ashy; rump ashy-crimson; longer tail-coverts and tail-feathers dark brown, edged with pale buff; wing-quills dark brown, edged with rosy-buff; lower parts crimson, paling posteriorly, each feather with a pale centre and those of the breast with conspicuous white striæ; vent and under tail-coverts rosy-white.

**Colours of soft parts.** Iris dark brown; bill horny-brown, the culmen darker, the base and gonys yellowish; legs and feet horny to dark brown, the claws still darker.

**Measurements.** Total length about 200 mm.; wing 106 to 112 mm.; tail 83 to 90 mm.; tarsus 21 to 22 mm.; culmen about 14 to 15 mm.

**Female.** Upper parts ashy-brown, streaked with dark brown wing-coverts and quills blackish brown, edged with pale ashy; tail brown, narrowly edged with white on the outermost feather;

lower plumage pale ashy, tinged with brown and heavily streaked with blackish, the streaks almost disappearing on the posterior abdomen, vent and thighs.

**Distribution.** Kashgar, Ladakh and North-East Kashmir, Tibet, Sikkim, Kansu and Yunnan.

Typical *rubicilla* differs from the present race in being much darker; the male in full plumage is dark crimson-brown above and much more deeply crimson below. The female is hardly distinguishable.

**Nidification.** This fine Rose-Finch breeds freely in Tibet, whence I have had eggs and nest sent me and Osmaston obtained a fine series in Ladakh at about 14,000 feet. In Tibet it certainly breeds up to 17,000 feet and down to a little over 12,000 feet. The earliest date I have recorded is the 12th June, four fresh eggs; and the latest 9th September, five fresh eggs. The nest is made principally of twigs more or less mixed with roots and grass and with a dense lining of hair or wool. It is placed generally low down in rose-bushes or in Tibetan Furze-bushes but sometimes six to ten feet up in Pollard Willows. The site chosen is seldom in jungle, the bush selected most often being one in the open, alongside a patch of cultivation or on the banks of a stream or irrigation ditch. The eggs number three to five and are deep hedge-sparrow's egg blue, sparsely spotted or speckled with black or purple-brown, occasionally having also a few fine twisted hair-lines. In shape they are broad ovals and the surface has a fair gloss. Sixty eggs average 24·0 × 16·8 mm.: maxima **28·3** × 18·3 and 24·9 × **18·7** mm.; minima **21·6** × 17·0 and 27·0 × **16·0** mm.

**Habits.** The Kansu Great Rose-Finch seems to be a bird of more open country than most of the genus, resorting very little to Pine-forest or even to thorn and scrub-jungle. It is a bird of the highest elevations, *i. e.* in Summer from 12,000 feet, more often 14,000 feet, up to the snow-line, and in Winter down to about 8,000 feet. It is said to have sweet notes during the breeding-season, hardly amounting to a song. Dresser's remarks on *C. severtzovi* and its breeding in Ladakh refer to this species and probably a number of Whistler's notes in the Bombay Natural History Journal (xxx, p. 186) also refer to this bird.

## (1071) **Carpodacus severtzovi.**

SEVERTZOFF'S ROSE-FINCH.

*Carpodacus severtzovi* Sharpe, P. Z. S., 1886, p. 354 (Turkestan); Blanford & Oates, ii, p. 220.

**Vernacular names.** *Awal-luk-si* (Tibet).

**Description.—Adult male.** Generally speaking very similar to *C. r. rubicilloides* but much paler; the upper parts are pinky fulvous grey, the crimson of the head paler, more pink and not

reaching to the nape; *the ear-coverts and sides of the head are pink, not crimson*; the lower parts are much paler, a rosy-pink rather than crimson, with much larger pale centres; the white margin to the outermost tail-feathers is broader, often covering the whole of the outer web.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Total length about 200 mm.; wing 116 to 122 mm.; tail 85 to 90 mm.; tarsus about 21 to 22 mm.; culmen about 14 mm.

**Female.** Much paler than *C. r. rubicilloides* with a fulvous rather than an ashy tinge; the striations above and below paler and more narrow, sometimes hardly visible on the back; the white margin to the outermost tail-feather is wide.

**Distribution.** The mountains of Central Asia, North-East Kashmir, Ladakh, Tibet to Mongolia, Chambi Valley, Sikkim.

**Nidification.** Records of this and of the preceding species have been very much intermixed. There is no doubt, however, that the breeding area of the two overlap, for although all the eggs actually taken in Ladakh have been of *rubicilloides*, yet this bird also undoubtedly breeds there and from Tibet I have had skins of both species sent me with eggs taken on the same date. The nidification is very similar in the two species, but whereas twigs form the staple material in the nest of *rubicilloides*, these are hardly used at all by *C. severtzovi* which restricts itself almost wholly to coarse dry grass. Otherwise the sites selected, the time of breeding and the eggs themselves are identically the same. Eighty eggs average 24·0 × 17·0 mm.: maxima **25·6** × 16·8 and 22·5 × **18·2** mm.; minima **21·9** × 17·1 and 25·0 × **16·7** mm.

**Habits.** Similar to those of the preceding bird.

## Genus **ERYTHROSPIZA.**

*Erythrospiza* Bonap., Faun. Ital., Ucc. pl. 35 (1832–41).

Type, *Erythrospiza githaginea.*

The genus *Erythrospiza* contains, with the exception of the genus *Uragus*, the palest forms of Rose-Finches, birds which keep to the desert or to barren hill-sides.

The bill is short, but very tumid, the lower edge of the lower mandible being as much curved as the culmen; the wings are very long, reaching beyond the middle of the tail; the tail is distinctly forked; the sexes differ considerably in colour.

*Key to Species.*

A. Upper parts more fulvous-grey; bill at base about 11 mm. deep ..... *E. githaginea*, p. 141.

B. Upper parts browner; bill at base about 8 mm. deep ..... *E. mongolica*, p. 142.

## Erythrospiza githaginea.

*Fringilla githaginea* Licht., Verz. Doubl. p. 24 (1823).

Type-locality: Egypt.

Differs from the Eastern form in being rather smaller and less grey, more pink.

## (1072) Erythrospiza githaginea crassirostris.

THE EASTERN DESERT-FINCH.

*Carpodacus crassirostris* Blyth, J. A. S. B., xvi, p. 476 (1847) (Afghanistan).
*Erythrospiza githaginea.* Blanf. & Oates, ii, p. 221.

**Vernacular names.** None recorded.

**Description.—Adult male.** Feathers of forehead and round the bill rose-pink or rose-red; crown and sides of the head grey; back and scapulars pale greyish fulvous; upper tail-coverts rose-pink with greyish bases; tail dark brown edged with vinous grey; visible portions of closed lesser and median coverts rosy-grey; greater coverts and winglet dark brown, broadly edged

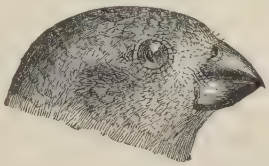


Fig. 34.—Head of *E. g. crassirostris.*

with rosy; quills dark brown edged with bright rosy-grey, the innermost secondaries with very broad outer rosy edges and narrower grey tips and inner edges; below a beautiful pale rosy-grey, more vinous on the breast and inclined to fulvous about the vent.

After the Autumn moult and until the feathers get sufficiently abraded to show the rose-colour the whole appearance is much more grey.

**Colours of soft parts.** Iris dark brown; bill scarlet or orange in the breeding-season, paler and more waxy-yellow in Winter; legs and feet fleshy or horny-brown.

**Measurements.** Total length about 150 mm.; wing 85 to 91 mm.; tail 51 to 55 mm.; tarsus about 19 mm.; culmen about 9 mm.

**Female.** Similar to the male but with no rosy tinge in Winter and in Summer with only a faint flush on the lower surface, rather more pronounced on the chin, throat and rump.

**Distribution.** Breeding in Afghanistan, Baluchistan and the

North-Western Frontier mountains of India. In Winter common in parts of Sind and it has been once obtained in Jodhpur and once by Hutton in the Gurgaon District, Punjab.

**Nidification.** This Finch apparently breeds in the hills about Quetta and Mr. F. Williams informs me that he has taken the nest and eggs but I have no details. Tomlinson obtained it, breeding, near Ahwaz in Mesopotamia in March.

**Habits.** Hume found this bird in flocks feeding on the ground in patches of mustard cultivation close to the foothills in Sind. They were very numerous, very tame but very active on their feet and, at a short distance, looked like a party of hen-sparrows.

## (1073) Erythrospiza mongolica.

THE MONGOLIAN DESERT-FINCH.

*Carpodacus mongolicus* Swinhoe, P. Z. S., 1870, p. 447 (Nankow Pass).
*Erythrospiza mongolica.* Blanf. & Oates, ii, p. 222.

**Vernacular names.** None recorded.

**Description.—Male.** Very much like the Eastern Desert-Finch but rather darker and more decidedly brown above; the crown is never grey and as soon as the feathers get a little abraded there is a distinct, though narrow, crimson-pink supercilium; the rose-pink on the wing-feathers and on the rump is generally much deeper, this colour on the greater coverts sometimes becoming pure crimson.

**Colours of soft parts.** Iris dark brown; bill pale fleshy, yellowish-fleshy or pale horny-brown; legs and feet pale fleshy-yellow or yellowish brown.

**Measurements.** Total length about 150 mm.; wing 88 to 93 mm.; tail 55 to 56 mm; tarsus about 17 mm.; culmen 8 to 9 mm.

**Female** and **young male** similar to the male but without the rosy tinge.

**Distribution.** Central Asia to Afghanistan, Baluchistan and Gilgit; Turkestan East to Mongolia and North-West China. It probably also breeds in North-West Kashmir and certainly does so in the mountains of the North-West Frontier. In Winter South to Sind, the Punjab, North-West Provinces and Rajputana.

**Nidification.** This Desert-Finch appears to be resident throughout the greater part of its range, breeding in May and June, making a cup-shaped nest of plant stems and grass lined with goats' hair. It is placed in bushes and low trees and sometimes on the ground in a tuft of grass. The eggs, four or five in number, are greenish-white rather feebly marked at the larger end with specks, spots and a line or two of blackish. They measure from 17·9 × 13·4 mm. to 20·4 × 14·6 mm.

**Habits.** Like the last bird this Finch is a frequenter of bare

open country, barren hills and stony plains interspersed with vegetation and patches of cultivation. It is active and swift both on the ground and in flight and has a sweet song during the breeding-season. Though actually a resident bird in its Summer haunts it often wanders considerably in Winter, when it gathers in large flocks.

## Genus **RHODOSPIZA.**

*Rhodospiza* Sharpe, Cat. B. M., xii, p. 282 (1888).

Type, *Rhodospiza obsoleta* Licht.

The genus *Rhodospiza* contains a Desert-Finch differing from the two preceding genera in its much larger bill, rather shorter wing and decidedly more forked tail. The pink colour, so characteristic of these Finches, is confined to the wings and the sexes are practically alike.

### (1074) **Rhodospiza obsoleta.**

LICHTENSTEIN'S DESERT-FINCH.

*Fringilla obsoleta* Licht., Eversm. Reise, Anhang, p. 132 (1826) (Bochara).

**Vernacular names.** None recorded.

**Description.—Adult male.** Upper plumage rufous sandy-brown, more rufous-brown on the forehead, rump, upper tail-coverts and shoulder of the wing; feathers round the eye and at the angle of the bill black; tail black, the outer web broadly, the inner web narrowly, edged with white; median and greater coverts dark brown edged with crimson-pink; primaries black, all but the outermost with white outer webs; secondaries black, the outer webs pink for three-quarters of their length, white at the tips; innermost secondaries with broad fulvous margins to the inner webs; chin, throat, sides of the neck and the breast pale sandy-brown, sometimes with a faint pink flush, paling to almost white on the centre of the abdomen, vent and under tail-coverts; axillaries and under wing-coverts white with a pink tinge.

**Colours of soft parts.** Iris dark brown; bill black ♂, horny-brown to blackish brown ♀; legs and feet dark brown to almost black.

**Measurements.** Total length about 140 mm.; wing 85 to 88 mm.; tail 59 to 61 mm.; tarsus about 17 mm.; culmen about 11 mm.

**Female** similar to the male but more ashy-grey above and rather paler and duller elsewhere.

**Distribution.** Palestine, Syria, to Persia, North-West India, Turkestan and Mongolia.

**Nidification.** Betham and later, Williams found this Finch

breeding in great numbers all round Quetta. The nest is a cup made of small twigs, grass, bents, etc. mixed with wool and odd scraps and lined thickly with wool, hair and a feather or two, welded into a mass. One nest, obtained by Mr. A. J. Currie in Persia, was composed almost entirely of string and wool. The favourite site is a roadside tree, less often a bush; the nests are wedged well into a fork, at any height from six to twenty feet and as they harmonize well with the supporting branch, they are not conspicuous, though no attempt is made to conceal them. The eggs number four to six, rarely seven, and vary from almost pure white to pale skim-milk blue, sparsely speckled and spotted at the larger end with black. The breeding-season lasts from early May to the middle of June, a second brood sometimes being reared in July. One hundred eggs average 18·9 × 14·2 mm.: maxima **22·0** × 15·0 and 20·4 × **15·1** mm.; minima **17·4** × **13·0** mm.

**Habits.** Probably resident wherever found, though it may wander to lower elevations during the Winter, when it collects in flocks. It is principally a ground bird, but not so entirely so as the birds of the genus *Erythrospiza*, whilst it may often be seen feeding on trees and bushes. It is said to have a pretty little song during the breeding-season.

## Genus **RHODOPECHYS**.

*Rhodopechys* Cabanis, Mus. Hein., Th. i, p. 157, note (1850).

Type, *Rhodopechys sanguinea* Gould.

The genus *Rhodopechys* contains a single species of Finch, coloured somewhat like the Desert Rose-Finches, but much darker. The bill is stout and moderate in size, the lower mandible stout and heavy in proportion to the upper; wing long; tail short and very slightly forked.

### (1075) **Rhodopechys sanguinea sanguinea.**

THE CRIMSON-WINGED FINCH.

*Fringilla sanguinea* Gould, P. Z. S., 1837, p. 127 (Erzerum).

**Vernacular names.** None recorded.

**Description.—Adult male.** Crown and nape black, a little brown showing on the edges of the feathers, especially on the forehead; lores and cheeks rosy crimson; a narrow crimson supercilium and a broad crimson line under the eye, the former paling to buff posteriorly; back and scapulars dark brown with black centres; lower back paler and with the black centres obsolete; rump sandy-brown, changing to crimson-pink on the lower rump and upper tail-coverts; tail black, the outermost feather white with a black shaft, the penultimate with the greater part of the inner web white; lesser and median wing-coverts like the back, tinged with rosy; greater coverts rosy,

tipped black; quills black, broadly edged with crimson-rosy on two-thirds of their length; secondaries tipped white; sides of the head, ear-coverts and upper breast brown, the feathers black-centred; a pale rosy band across the breast, generally followed by more brown; remainder of lower plumage white washed with pink; flanks brown with darker shaft-stripes; axillaries and under wing-coverts white washed with rosy.

**Colours of soft parts.** Iris dark brown; bill yellow, darker on the culmen and tip; legs and feet yellowish brown to dark brown.

**Measurements.** Total length about 190 mm.; wing 100 to 110 mm.; tail 55 to 62 mm.; tarsus 20 to 21 mm.; culmen about 12 mm.

**Female.** Like the male but with practically no black on the crown and no rose-colour on rump, upper tail-coverts or greater wing-coverts; other colours generally paler and duller.

**The young male** is like the female but rather darker and with more indication of the black cap.

**Distribution.** Palestine, Asia Minor, Caucasus through Eastern Asia to Turkestan, Afghanistan and Baluchistan.

**Nidification.** A nest taken by Cochrane near Lebanon is described as like that of a Greenfinch, placed in a tree. It contained one egg, white with a greyish sea-green tinge, minutely dotted at the larger end with grey and measuring 22·1 × 15·2 mm.

**Habits.** The Crimson-winged Finch is said to be a restless, active bird frequenting broken forest on rocky hillsides and to have a very Bullfinch-like song. I retain it in the Indian Avifauna on the identification of Harington, who writes in a letter to me that he is sure he saw this species in the Khagan Valley at about 9,000 feet though he failed to obtain specimens.

## Genus **PROCARDUELIS.**

*Procarduelis*, Hodgs. in Gray's Zool. Misc. p. 84 (1844).

Type, *P. nipalensis* Hodgs.

The genus *Procarduelis* contains certain species which are Rose-Finches in plumage but differ remarkably from those birds in having the bill straight, slender and pointed, very much as in *Carduelis*. The sexes differ in plumage and the females are unstreaked.

### *Key to Species.*

A. Lower plumage red.
  *a.* Forehead and supercilium different in colour and contrasting with the crown. *P. nipalensis*, ♂, p. 146.
  *b.* Forehead, supercilium and crown practically concolorous ..... *P. rubescens*, ♂, p. 147.

B. Lower plumage brown with no trace of red.
  *c.* Upper plumage all brown ..... *P. nipalensis*, ♀, p. 146.
  *d.* Rump and upper tail-coverts suffused with red ..... *P. rubescens*, ♀, p. 148.

## Procarduelis nipalensis.

*Key to Subspecies.*

A. Plumage above and below lighter and brighter ..... *P. n. nipalensis*, p. 146.
B. Plumage above and below deeper and duller ..... *P. n. intensicolor*, p. 147.

### (1076) Procarduelis nipalensis nipalensis.

THE NEPAL DARK ROSE-FINCH.

*Carduelis nipalensis* Hodgs., As. Res., xix, p. 157 (1836) (Nepal).
*Procarduelis nepalensis* Blanf. & Oates, ii, p. 223.

**Vernacular names.** *Ka-biya* (Lepcha).

**Description.—Adult male.** Forehead, anterior crown and a broad supercilium rosy-crimson; lores and a broad line through the eye blackish crimson; posterior crown and nape deep velvety crimson; upper plumage and wing-coverts deep brown tinged with crimson and the edges to all the feathers paler and more crimson; wing and tail-quills brown edged with crimson which,

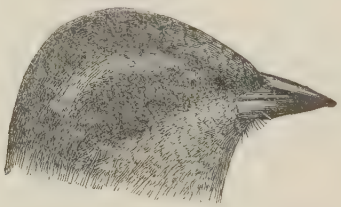


Fig. 35.—Head of *P. n. nipalensis*.

except on the inner secondaries, is soon lost by abrasion; cheeks, chin, throat, lower breast and abdomen rosy-red, paler than the forehead; upper breast and flanks crimson-brown; under tail-coverts brown margined with pinkish white; under wing-coverts and axillaries brown.

**Colours of soft parts.** Iris dark brown; bill dark horny-brown, paler on the gonys; legs and feet fleshy-brown.

**Measurements.** Total length about 160 mm.; wing 87 to 94 mm.; tail 64 to 67 mm.; tarsus 21 to 22 mm.; culmen 11 to 12 mm.

**Female.** Upper plumage dark brown obsoletely edged with ochraceous, the back with the dark centres and pale margins better defined; wing dark brown, the coverts and inner secondaries broadly tipped on the outer web with ochraceous; tail brown, very narrowly edged with the same; sides of the head and neck

and whole lower plumage ochraceous-brown, the under tail-coverts paler and with dusky centres.

**Distribution.** Kashmir, Kuman, Garhwal, Sikkim, Bhutan and Assam East to the hills above Sadya.

**Nidification.** Whymper found this bird breeding on the Pindari Glacier, Kuman, at a height of 12,000 to 14,000 feet but failed to find its nest. After he left, his native collector obtained a nest with three eggs which he forwarded with the parent birds. The eggs have a pinkish-white ground and are blotched and speckled with light reddish-brown, rather freely at the larger end, sparsely elsewhere. They measure 22·2 × 15·3, 22·9 × 15·1 and 22·3 × 15·3 mm. They were taken in the latter part of August 1912.

**Habits.** This Rose-Finch frequents altitudes in Summer between 10,000 and 14,000 feet, perhaps also up to greater heights as the snow-line retreats. In Winter it collects in large flocks, generally restricted to one sex, and then descends to 7,000 feet. Rarely it descends to 4,500 feet, at which elevation Stevens found it in Sikkim. A tame, confiding bird, feeding in the Alpine pastures and in thin oak and rhododendron forests.

## (1077) Procarduelis nipalensis intensicolor.

THE YUNNAN DARK ROSE-FINCH.

*Procarduelis nipalensis intensicolor* Stuart Baker, Bull. B. O. C., xlv, p. 92 (1925) (Yunnan).

**Vernacular names.** None recorded.

**Description.—Adult male.** Similar to the Nepal Dark Rose-Finch but much deeper in colour everywhere, especially below, where the deep crimson-brown of the breast runs into the throat and extends over nearly the whole of the lower parts.

**Colours of soft parts.** "Iris dark brown; bill grey-brown or horn-brown, lighter below; legs and feet grey-brown" (*Forrest*).

**Measurements.** Wing 91 to 96 mm.

**Female** differs from the female of the Nepal bird in being darker everywhere and more smoky, less ochraceous.

**Distribution.** Yunnan and Shan States.

**Nidification.** Not known.

**Habits.** Forrest obtained this Finch in Summer between 12,000 and 13,000 feet on the Lichiang Range in pine forests. Cook obtained a specimen in the Shan States at about 8,000 feet in Winter.

## Procarduelis rubescens.

*Key to Subspecies.*

A. Lighter; more especially on the crown in the male and the underparts in the female ..... *P. r. rubescens*, p. 148.
B. Darker ..... *P. r. saturatior*, p. 148.

## (1078) Procarduelis rubescens rubescens.

BLANFORD'S ROSE-FINCH.

*Procarduelis rubescens* Blanf., P. Z. S., 1871, p. 694 (Sikkim); Blanf. & Oates, ii, p. 224.

**Vernacular names.** None recorded.

**Description.—Male.** Crown, nape and neck crimson; back, scapulars, rump and upper tail-coverts brownish-crimson; wing-coverts crimson with brown bases, the greater coverts edged, some with crimson, some with rufous-buff; wing and tail-quills brown, edged with crimson; sides of the head, lores and an indefinite line through the eye brown, mixed with crimson; cheeks, ear-coverts, chin and throat rosy-pink, becoming duller and much mixed with brown or smoky on the breast and flanks and albescent on the centre of the abdomen; under tail-coverts pale smoky-brown with whitish edges; under wing-coverts and axillaries greyish-brown, edged more fulvous.

**Colours of soft parts.** Iris dark brown; bill pale horny-brown, the lower mandible paler and yellowish; legs light brown.

**Measurements.** Total length about 155 mm.; wing 80 to 84 mm.; tail 50 to 55 mm.; tarsus 18 to 19 mm.; culmen about 13 mm.

**Female.** Very like the female of *P. n. nipalensis* but with the upper parts and edges to the feathers of wings and tail suffused with crimson; the lower plumage is paler, becoming smoky pale grey on the centre of the abdomen.

**Distribution.** Eastern Nepal and Sikkim.

**Nidification.** Unknown.

**Habits.** This is a Finch of high elevations, from 10,000 feet to the snow-level in Summer; on the other hand, it more often comes down to 6,000 feet and lower in Winter than does *P. nipalensis*. Stevens found it in Sikkim at elevations below 6,000 feet on several occasions and twice as low as 4,500 feet. They keep much to open country and to the outskirts of the larger woods and smaller plantations.

## (1079) Procarduelis rubescens saturatior.

ROTHSCHILD'S DARK ROSE-FINCH.

*Procarduelis rubescens saturatior* Roths., Bull. B. O. C., xliii, p. 12 (1922) (Lichiang Range, Yunnan).

**Vernacular names.** None recorded.

**Description.** Both sexes differ from those of Blanford's Rose-Finch in being darker both above and below. In the male this is most noticeable in the crimson colour of the crown; in the female the lower parts are not only much darker but are everywhere a dull smoky grey-brown.

**Colours of soft parts.** Iris dark brown; legs, feet and bill dark grey-brown (*Forrest*).

**Measurements.** Wing 81 to 84 mm.

**Distribution.** At present only known from Yunnan but is certain to occur in the higher ranges of the Shan States.

**Nidification and Habits.** Nothing recorded.

## Genus CARDUELIS.

*Carduelis* Brisson, Orn., iii, p. 53 (1700).

Type, *Carduelis carduelis* Linn.

The genus *Carduelis* is at once sharply divided from all *Rose-Finches*, except *Procarduelis*, by its long, slender, straight and pointed bill and from all Rose-Finches by its coloration, the principal characteristic being the bright red face. The wings are longer and more pointed than in any of the Rose-Finches; the tail is long and very slightly forked.

*Key to Species.*

A. Hinder crown and sides of neck black; back and breast ruddy-brown ..... *C. carduelis*, p. 149.
B. Hinder crown and sides of neck not black; back and breast ashy ..... *C. caniceps*, p. 150.

## Carduelis carduelis.

*Fringilla carduelis* Linn., Syst. Nat., 12th ed. i, p. 318 (1766).

Type-locality: Sweden.

The form of this bird, which has been found within the limits of the present work, *C. c. major*, differs from *C. c. carduelis* principally in its larger size and somewhat heavier bill.

### (1080) Carduelis carduelis major.

THE TURKESTAN GOLDFINCH.

*Carduelis major* Taczan., P. Z. S., 1879, p. 672 (Turkestan).

**Vernacular names.** None recorded.

**Description.** Forehead, anterior crown, cheeks and chin crimson; lores and a narrow line round the base of the bill black; centre of crown, nape, sides and back of crown scarlet, followed by a whitish patch; upper back, scapulars and lower back pale chocolate-brown; rump and upper tail-coverts white; tail black, white-tipped and marked as in *Carduelis caniceps*; wings also as in that bird but all the quills tipped with white; a broad band on the chest, broken in the centre, light chocolate-brown, paler on the flanks; remainder of lower plumage white or nearly so.

**Colours of soft parts.** Iris brown; bill pale horny-yellow, tipped darker; legs pale horny-brown.

**Measurements.** Total length about 150 mm.; wing 86 to 89 mm.; tarsus about 20 to 21 mm.; culmen about 13 to 13·5 mm.

**Distribution.** West Siberia to the Yenesei, Turkestan and Persia. Doubtfully recorded from Ziarat, near Quetta, 8,000 feet.

**Nidification** and **Habits** similar to those of the European Goldfinch.

## Carduelis caniceps.

A. Darker, both above and below, rather smaller, wing under 82 mm. ..... *C. c. caniceps*, p. 150.
B. Paler and rather larger; wing over 82 mm. .. *C. c. subulata*, p. 151.

## (1081) Carduelis caniceps caniceps.

THE HIMALAYAN GOLDFINCH.

*Carduelis caniceps* Vigors, P. Z. S., 1831, p. 23 (Himalayas; Simla-Almora Districts); Blanf. & Oates, ii, p. 225.

**Vernacular names.** *Shira* (Hind.); *Saira* (Kashm).

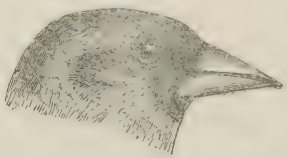


Fig. 36.—Head of *C. caniceps caniceps.*

**Description.—Male.** Forehead, cheeks and chin crimson; upper plumage pale ashy-brown, becoming still paler on the rump and pure white on the upper tail-coverts; tail black, the two central pairs tipped white, the two outermost pairs largely white on the outer webs from the base; wing-coverts black, the greater coverts broadly tipped with yellow, quills black, all but the first primary with a broad yellow patch on the base of the outer webs; innermost secondaries with the outer web mostly white; throat ashy-white; sides of the neck and head, breast and flanks ashy-brown, more fulvous on the flanks; abdomen and under tail-coverts almost white.

**Colours of soft parts.** Iris brown; bill fleshy-yellow, the tip dark brown; legs and feet pale brown.

**Measurements.** Total length about 140 mm.; wing 76 to 81 mm.; tail 48 to 50 mm.; tarsus about 13 mm.; culmen 13 to 15 mm.

**Female** similar to the male but with less and paler crimson on the face and less yellow on the wings.

**Nestling.** Above light brown with darker centres to the feathers, below white or fulvous-white, spotted from chin to lower breast and flanks with dark brown; the wing-quills and tail when they first appear are broadly tipped with fulvous; there is no red or black on the head and the yellow patch on the wing is much smaller.

**Distribution.** The Himalayas from Gilgit and Kashmir to Kuman, Simla States and Garhwal.

**Nidification.** The Himalayan Goldfinch breeds over practically the whole of Kashmir except in the extreme East and, perhaps, the North-East. South it breeds as far as Kuman, Garhwal and the Simla States. Col. Rattray took its nest at an elevation of only 5,000 feet but more commonly it breeds above 7,000 and up to 14,000 feet. At the lower elevations a few nests may be found in May but most eggs are laid in June onwards, fresh eggs having been taken on to the end of August, possibly a second brood. The nest is just like that of the Common Goldfinch, a neat little cup of fine roots and grass mixed into a mass of moss and lined with seed down. Most nests are built in the outer branches of pines at from 6 to 25 feet from the ground and are often very difficult to see. The eggs number three to five and are a very pale sea-green, occasionally pinkish, sparingly spotted at the larger end with pale dull reddish and lilac. A few eggs are practically unspotted and, more rarely a few are marked with almost black. Sixty eggs average 18·5 × 13·2 mm.: maxima **19·4** × 12·8 and 19·0 × **13·9** mm.; minima **16·8** × 13·2 and 17·9 × **12·2** mm.

**Habits.** A very common bird in Kashmir and, indeed, over its whole range in suitable localities. It is resident everywhere, though it leaves the greater heights in Winter and avoids the lower in Summer. In Winter it assembles in flocks, often of a great size, and is then very conspicuous, feeding in gardens, orchards and open spaces, attracting attention both by its beauty and its restlessness. In Summer, on the other hand, the flocks break up, it retreats to more secluded country and to the pine-woods and those who do not know where to look, or how to look, for it pronounce it absent or very rare. Its food consists mainly of tiny seeds of flowers, weeds, etc., its song is similar to that of the European Goldfinch, though less full and sweet, and its flight is direct and swift.

## (1082) **Carduelis caniceps subulata.**

THE CENTRAL ASIAN GOLDFINCH.

*Fringilla subulata* Gloger, Abändern Vög. p. 153 (ex Gloger MS.) (1833) (Yenesei).

**Vernacular names.** *Shira* (Hind.).

**Description.** Similar to the preceding bird but paler both above and below in both sexes.

**Colours of soft parts** as in the Himalayan Goldfinch.

**Measurements.** Wing 83 to 85 mm.; tail 50 to 53 mm.; tarsus about 15 mm.; culmen 14 to 15 mm.

**Distribution.** Central Asia from Transcaspia, the Yenesei, Tomsk and Baikal Districts to Afghanistan, Baluchistan and Persia.

I cannot find any differences between this form, Kollibay's *paraponisi* and Sarudny's *subcaniceps*. Those who follow Hartert and accept these races would have to use the last name for our Baluchistan bird and omit the Siberian Districts from its range.

**Nidification.** Captain C. H. T. Whitehead took its nest in the Kurram Valley at 10,900 feet on the 3rd of July. He describes it as a typical Goldfinch's nest placed 20 feet up in a Pencil Cedar near the end of a branch. The three eggs, which are in appearance indistinguishable from those of the preceding bird, measure 18·5 × 14·0, 19·1 × 13·6 and 18·7 × 13·8 mm.

**Habits.** Captain Whitehead found this bird common and in large flocks at Kohat from November to May, when they are caught by bird snarers in large numbers. They frequent gardens, cultivated country and open, well-wooded hillsides and are also found in very barren stony places if there is any attraction in the way of food.

## Genus CALLACANTHIS.

*Callacanthis* Reichenb., Syst. Av., tab. lxxviii, fig. 12 (1850).

Type, *Callacanthis burtoni* Gould.

The genus *Callacanthis* has affinities both with the Rose-Finches and Goldfinches. The bill is shaped like that of *Carduelis* but is much stouter and both wide and deep at the base; the wings and tail are white-spotted somewhat as in those of the Goldfinch and the male has some scarlet on the face; on the other hand, the whole lower surface is washed with red-crimson. The wings are very long and the sexes are not alike.

### (1083) Callacanthis burtoni.

THE RED-BROWED FINCH.

*Carduelis burtoni* Gould, P. Z. S., 1837, p. 90 (Himalayas, Srinagar, Kashmir).
*Callacanthis burtoni*. Blanf. & Oates, ii, p. 226.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, lores and feathers round the eye crimson; crown, nape, cheeks and ear-coverts black, the two last with whitish shafts; upper plumage and scapulars brown, very faintly tinged with rose-colour; tail black, tipped with white, narrowly on the centre tail-feathers, increasing in extent until

nearly the whole of the inner web is white on the two outermost pairs; lesser and median wing-coverts black, edged with rosy-fulvous; greater coverts and quills black, tipped with white, often with rosy-white; chin and throat rosy-red with black bases to the feathers; remainder of lower parts rosy ochre-brown; under wing-coverts and axillaries white with grey bases.

**Colours of soft parts.** "Iris hazel; bill in male horny, base of upper mandible and whole lower mandible dull yellow with dark tip; bill in female without the yellow tinge" (*H. Stevens*).

**Measurements.** Total length about 170 mm.; wing 95 to 102 mm.; tail 64 to 66 mm.; tarsus 20 to 21 mm.; culmen 14 to 15 mm.

**Female.** A narrow frontal line and round the eye bright ochre-yellow; crown and nape chocolate-brown with darker centres; upper plumage, lesser and median coverts ochraceous brown, the coverts tipped paler; remainder of wing and tail as in the male but duller; lower plumage ochraceous brown.

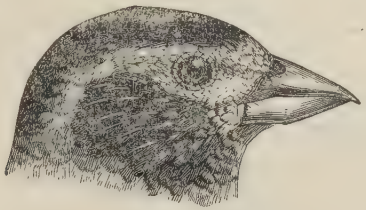


Fig. 37.—Head of *C. burtoni*.

**Distribution.** Himalayas from Chitral and North Kashmir to Kuman and Simla States; Nepal and Sikkim.

**Nidification.** Little is known about the breeding of this fine Finch but it probably nests throughout its range at about 9,000 feet upwards wherever there are coniferous forests. Ward took its nest in Kashmir at 9,000 feet on Kolahir, and describes it as a small cup made almost entirely of needles of the blue pine. It contained three eggs. A nest obtained by Col. R. H. Rattray is said to have been made of sticks and moss lined with pine needles and roots. The three eggs obtained in this latter nest are very handsome eggs just like those of the true Rose-Finches. In ground-colour they are bright pale blue, the larger end boldly spotted and blotched with black, some of the blotches looking as if they had run into purplish-red round the edges. The three eggs measure 25·2×16·2, 23·2×16·6 and 23·9×16·3 mm. They were taken in Kashmir on the 25th of June.

**Habits.** Col. Magrath (Journal Bombay Nat. Hist. Society, xxi, p. 546) found this bird not uncommon in the Sind Valley between 9,000 and 10,000 feet, picking up seeds on the ground in thick undergrowth like the birds of the genus *Perissospiza*. It

keeps much to the interior of deep forest but is not shy or intolerant of observation. Its call-note is syllabified as "*uh-eh*" and its note of distress "*tuee-yeh*." Its flight Magrath likened to that of the Grosbeak.

### Genus ACANTHIS.

*Acanthis* Bechst., Orn. Taschenb., p. 125 (1805).

Type, *Acanthis linaria* Linn.

The genus *Acanthis* contains the Linnets, forms of two species being found in the Himalayas. The bill in this genus is short, straight and pointed, the wing is long and the sexes only differ in that the female has no red on the plumage.

*Key to Species.*

A. Throat streaked ..... *A. cannabina*, p. 154.
B. Throat unstreaked..... *A. flavirostris*, p. 155.

## Acanthis cannabina.

*Fringilla cannabina* Linn., Syst. Nat., 10th ed., p. 182 (1758).

Type-locality: Sweden.

The typical form differs from our Eastern form in being darker both above and below and in having the red parts crimson rather than crimson-pink.

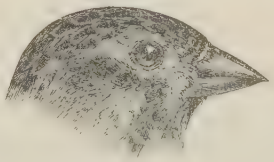


Fig. 38.—Head of *A. c. fringillirostris*.

### (1084) Acanthis cannabina fringillirostris.

THE EASTERN LINNET.

*Linota fringillirostris* Bp. & Schleg. Monog. Lox. p. 45 (1850) (Kashmir).
*Acanthis fringillirostris*. Blanf. & Oates, ii, p. 228.

**Vernacular names.** None recorded.

**Description.—Adult male.** Forehead ashy-brown with deep crimson centres to the feathers; remainder of head, nape and neck ashy-brown; back, scapulars, rump and wing-coverts dark brown with broad chestnut margins; upper tail-coverts black, broadly edged with white; tail black, the outer webs narrowly edged with white, the inner webs nearly all white; primaries black, finely edged with white; secondaries black, tipped white

and broadly edged with fulvous-chestnut, the innermost being nearly all of this colour; chin and throat white, streaked with dark brown; breast bright rosy-pink or crimson-pink; flanks pale chestnut-fulvous, abdomen and under tail-coverts white.

**Colours of soft parts.** Iris brown; bill pale horny-brown, yellowish at the base and darker on the culmen and tip; legs and feet pale fleshy-horny to fleshy-brown.

**Measurements.** Total length about 140 mm.; wing 81 to 85 mm.; tail 87 to 90 mm.; tarsus about 16 mm.; culmen 10 to 11 mm.

**Female** similar to the male but with no rose tint and with the breast fulvous-white, broadly streaked with dark brown.

**Distribution.** Asia Minor and the Caucasus to Turkestan, Persia, Afghanistan and Northern Kashmir.

**Nidification.** The Eastern Linnet breeds in Central Asia from early May to the end of June, making a nest just like that of the Common Linnet and laying eggs which do not differ from those of that bird. Four eggs measure (*Jourdain*) 19·5×14·1 mm. Eight eggs in my own collection from Persia vary between 17·2×13·1 and 19·3×14·1 mm.; the two clutches were taken on the 1st and 7th of June.

**Habits.** The Eastern Linnet is a very doubtful breeder within Indian limits but may do so in Gilgit, where it is reported to be resident from 5,000 feet upwards. Whistler reports it to be a common winter visitor to the submontane tract in the North-West Punjab; Whymper obtained it on the Salt Range and again at Kohat; Currie believed he saw Linnets—which must have been of this race—in Lahore; there is a specimen from Daotupper, Sind, in the British Museum and Butler thought he saw this species at Karachi. It collects in very large flocks during the winter but keeps, as in Summer, to open country, cultivation, orchards and barren hillsides. It has a sweet little song and is an active, lively little bird with a fairly swift but rather dipping flight.

## Acanthis flavirostris.

THE TWITE.

*Fringilla flavirostris* Linn., Syst. Nat., 10th ed., p. 182 (1758).

Type-locality: Sweden.

*Key to Subspecies.*

A. Streaks on lower plumage confined to breast ..... *A. f. brevirostris*, p. 156.
B. Streaks on lower plumage extending on to posterior flanks and abdomen.
  *a*. Abomen almost white ..... *A. f. montanella*, p. 157.
  *b*. Abdomen distinctly rufous ..... *A. f. rufostrigata*, p. 157.

## (1085) Acanthis flavirostris brevirostris.

THE EASTERN TWITE.

*Linota brevirostris* Moore, P. Z. S., 1855, p. 516 (Erzerum).
*Acanthis brevirostris*. Blanf. & Oates, ii, p. 229.

**Vernacular names.** None recorded.

**Description.—Male.** Upper plumage and wing-coverts fulvous-brown, each feather with a broad mesial dark brown streak; rump pale rosy-pink; upper tail-coverts dark brown with broad white edges; tail black with narrow outer and broad inner white edges to each feather; greater coverts very dark brown, edged with sandy-brown and tipped white; primaries black, edged with white, narrow on the outer, increasingly broad on the basal half of the inner primaries, so as to form a conspicuous white wing-patch; innermost secondaries broadly edged with sandy-brown and tipped with white; chin and throat sandy-white, breast white, but nearly covered with broad dark brown central streaks; posterior flanks less boldly streaked and whole abdomen and under tail-coverts immaculate white; axillaries and under wing-coverts white.

**Colours of soft parts.** Iris brown; bill yellowish-horny, darker on the culmen and at the tip; legs and feet brown.

**Measurements.** Total length about 140 mm.; wing 72 to 78 mm.; tail 61 to 64 mm.; tarsus about 16 mm.; culmen 5 to 6 mm.

**The Female** has the rump the same colour as the back and has no rosy tinge.

**Distribution.** From the Caucasus and Asia Minor to Persia, Turkestan, Tibet, Manchuria and Gilgit.

**Nidification.** Ward records this Twite as breeding in Ladakh but the form breeding there is *rufostrigata*. On the other hand, the eggs he obtained are *not* those of this form but are much smaller and are exactly like the eggs of true *brevirostris* from the Tianschan. It is just possible that the Eastern Twite may come into the extreme North of Ladakh. Eggs taken by Col. Ward in June are exactly like small, rather pink-tinged eggs of the preceding bird and the nests also are quite similar to those of that bird. The eggs measure between 15·6 × 12·1 and 17·7 × 13·1 mm. Its reported breeding in Sikkim must be due to error.

**Habits.** Very similar to those of the preceding bird. Hitherto it has always been confounded with the next two races and it is consequently difficult to determine what status it has in India. If it were not for the eggs taken by Col. Ward I should exclude this form from the Indian Avifauna.

## (1086) Acanthis flavirostris montanella.

STOLICZKA'S TWITE.

*Linota montanella* Hume, Lahore to Yarkand, p. 261 (1873) (Arpalak River, Yarkand).

**Vernacular names.** None recorded.

**Description.** Similar to *A. f. brevirostris* but much more heavily marked below, the broad central streaks covering the flanks and extending on to the abdomen; at the same time the streaks on the breast are not so broad and never render this part almost uniform brown.

**Colours of soft parts** as in the Eastern Twite.

**Measurements.** Wing 73 to 78 mm.

**Distribution.** South Turkestan, Yarkand, Gilgit and North-West Kashmir.

**Nidification.** Unknown. It must certainly breed in Gilgit, where it appears to be resident from 5,000 feet upwards.

**Habits.** As far as is known similar to those of the other races but apparently keeps to very barren country.

## (1087) Acanthis flavirostris rufostrigata.

THE TIBETAN TWITE.

*Linota rufostrigata* Walton, Bull. B.O.C., xv, p. 93 (1905) (Gyantse, Tibet).

**Vernacular names.** *Dong-deng-ma* (Tibet); *Pegam-bejée* (Gyantse).

**Description.** Each sex similar to the corresponding sex of Stoliczka's Twite but with the underparts distinctly rufescent and not white. The upper parts are generally paler and the amount of rosy tinge on the rump is pale and restricted.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 78 to 80 mm.

**Distribution.** Ladakh and Tibet.

**Nidification.** This Twite breeds in vast numbers from Ladakh to Sikkim in the months of June, July and August at elevations between 12,000 and 15,000 feet. In the Gyantse Plains the Twite literally swarms and nests may be found in almost any patch of Tibetan furze, brambles or even clumps of willows. Most nests are built low down, often within a few inches of the ground, whilst others may be taken in willows as high up as ten or fifteen feet. The nest is a small compact cup made of grass, roots and weed-stems, often mixed with scraps of wool or hair and always neatly lined with wool, hair or vegetable down, sometimes with these mixed up and with the addition of one or two soft feathers.

Normally the eggs number four or five but occasionally six or seven are laid. The ground-colour is a very pale skim-milk blue, sometimes practically white and sometimes with a pinkish tinge. The primary markings consist of specks, spots and small irregular blotches of pinkish brown, the secondary ones being of lavender and pale pinky-grey. Both are sparse everywhere but less so at the larger end, where in some eggs they form a ring or cap. Two hundred eggs average 18·1 × 13·3 mm.: maxima **20·2** × 12·3 and 20·1 × **14·4** mm.; minima **17·0** × 13·0 and 18·2 × **12·2** mm.

**Habits.** This Twite does not appear to be migratory, merely moving a little vertically with the seasons. In Summer it is found up to the snow-line and down to about 12,000 feet, whilst in Winter it comes down only some 2,000 feet lower. The lowest record is between 9,000 and 10,000 feet in the Chambi Valley in Sikkim, where my collectors obtained it in December. It is a frequenter of open places, both barren and stony and such as are covered either with cultivation or with pasture and wild flowers; forests and the larger spinneys it never haunts but it may sometimes be found in scrub-jungle, juniper-bushes and small clumps of willows by water. The Tibetan furze is a favourite resort. In voice, food, flight, etc. it is very similar to the other races.

## Genus **METAPONIA.**

*Metaponia* Bonaparte, Notes Coll. Delattre, p. 17 (1854).

Type, *Metaponia pusilla* Pall.

The genus *Metaponia* contains one Finch which has a considerable amount of yellow in its plumage and connects the Linnets with the Siskins. In this genus the sexes are alike, the bill is small but thick, with the culmen well curved; the wing is long with the first, second and third primaries subequal in length; the tail is well forked. This genus is very close to *Serinus*, which contains the Canaries and Serin Finches.

### (1088) **Metaponia pusilla.**

THE GOLD-FRONTED FINCH.

*Passer pusillus* Pall., Zoogr. Rosso-Asiat., ii, p. 28 (1811) (Erzeroum).
*Metaponia pusilla.* Blanf. & Oates, ii, p. 230.

**Vernacular names.** None recorded.

**Description.** Forehead and anterior crown crimson-gold; head, throat and upper breast black, the black obscured in freshly-moulted plumage by grey fringes to the feathers; back, scapulars and rump brownish black, the feathers edged with yellow; shorter upper tail-coverts golden-yellow, tipped whitish and with

a central dark patch; longer tail-coverts blackish with white edges; tail black, edged with yellow at the base and with white at the tips; lesser and median wing-coverts like the back but with broader, brighter yellow margins; greater coverts black with broad yellowish-white tips; primaries and outer secondaries black, edged with golden-yellow; inner secondaries broadly edged with white; lower plumage from the breast yellow or yellow-white, streaked with blackish; under wing-coverts and axillaries bright yellow.

**Colours of soft parts.** Iris dark brown; bill black or horny-black; legs and feet black.

**Measurements.** Total length about 125 mm.; wing 70 to 76 mm.; tail 54 to 57 mm.; tarsus 16 to 17 mm.; culmen 7 to 8 mm.

**Young bird** like the adult with the head and breast like the back; the yellow edging to the feathers is replaced with fulvous and the central black by dark brown.

Fig. 39.—Head of *M. pusilla*.

**Distribution.** Caucasus, mountains of Central Asia, Persia, Afghanistan, Kashmir, Ladakh and Tibet.

**Nidification.** The Gold-fronted Finch breeds in the Himalayas from the end of May (26.5 Rattray, Murree) to the early part of August, on the eighth of which month B. B. Osmaston found eggs in Ladakh at 11,000 ft. It breeds as low down as 6,000 feet in Kashmir and up to 12,000 feet in Tibet and in Lahul, where Whistler took nests at this elevation. The nest is a lovely little compact cup of fine grasses, roots and fibres, well lined with wool or hair, or both. It may be placed either in a Juniper-tree well raised from the ground or in a rose- or briar-bush within two or three feet of it. The eggs number four, occasionally three or five. In appearance they can hardly be distinguished from those of the preceding species but are decidedly smaller. Fifty eggs average 17·3 × 12·6 mm.: maxima **19·0 × 13·9** mm.; minima **15·4** × 12·2 and 16·3 × **11·5** mm.

**Habits.** This little Finch is found up to 14,000 feet or higher in Summer, descending to 6000 feet in Winter, sometimes wandering even 2000 feet lower than this in the coldest months. It is gregarious when not breeding and, in its ways, seems to be very like the Twites.

## Genus HYPACANTHIS.

*Hypacanthis* Cabanis, Mus. Hein., Th. i, p. 161 (1850).

Type, *Hypacanthis spinoides* Vigors.

The genus *Hypacanthis* was included by Sharpe in *Chrysomitris* and by Hartert in the genus *Acanthis* but it seems to be sufficiently well defined from these by its bill; this is more slender and pointed than in the latter, less slender and pointed than in the former. The wings and tail are much the same as in *Metaponia*. The sexes differ but slightly.

## Hypacanthis spinoides.

*Key to Subspecies.*

A. Underparts bright yellow ..... *H. s. spinoides*, p. 160.
B. Underparts dull yellow, breast and flanks olive-green ..... *H. s. ambiguus*, p. 161.

## (1089) Hypacanthis spinoides spinoides.

THE HIMALAYAN GREENFINCH.

*Carduelis spinoides* Vigors, P. Z. S., 1831, p. 44 (Simla).
*Hypacanthis spinoides*. Blanf. & Oates, ii, p. 231.

**Vernacular names.** None recorded.

**Description.—Male.** Lores, round the eye, a short broad supercilium and forehead bright yellow, the last often more or less or even wholly black; crown, ear-coverts and nape dark brown; sides of neck yellow, meeting in an indistinct collar below the nape; back, scapulars and smallest wing-coverts greenish-brown, sometimes washed with yellow; rump yellow; upper tail-coverts dark brown; central tail-feathers brown with concealed yellow bases, the yellow increasing until it covers nearly the whole of the outermost feathers; lesser and median wing-coverts yellow; greater coverts black, tipped with yellow; primaries dark brown with a broad yellow basal patch; secondaries brown, the inner with broad edges and tips of white; whole lower parts bright yellow.

**Colours of soft parts.** Iris bright hazel to dark brown; bill fleshy or yellowish-horny, darker on the culmen and tip; legs and feet fleshy.

**Measurements.** Total length about 130 mm.; wing 76 to 80 mm.; tail 45 to 48 mm.; tarsus about 14 mm.; culmen about 9 to 10 mm.

**Female.** Like the male but duller and paler, more washed with green above and without the yellow forehead.

**Young.** Above fulvous-brown, streaked with dark brown and with the yellow collar just showing; below oily pale yellow,

streaked with brown ; wings and tail like the adult but with less yellow.

**Distribution.** Himalayas from the Baluchistan-Afghanistan Frontier, Gilgit through Kashmir, Kuman, Garhwal, Nepal, Tibet, Sikkim, Bhutan and Manipur.

**Nidification.** Breeds in the Himalayas between 6,000 and 11,000 feet from the end of June to early September, principally in July and August. The nest is a neat, well-built cup of fine grasses, roots, weed-stems and fibre, sometimes mixed externally with a little moss and well lined with wool, hair and feathers. It may be placed at any height between six and sixty-eight feet from the ground and the tree most often selected is a Deodar growing in fairly thick forest. The position is always the upper surface of a horizontal bough, generally concealed and well protected from rain by overhanging foliage. They seem to breed in company, for Dodsworth records finding five and four nests respectively on two occasions within a radius of fifteen yards. The eggs number four or five and in ground-colour are a clear greenish-white or pale sea-green, sometimes more bluish. The markings consist of tiny blackish specks and small dots confined to the larger end, where they sometimes form an indefinite ring. Eighty eggs average 18·7 × 13·7 mm. : maxima **19·9 × 15·0** mm. ; minima **17·2** × 13·9 and 17·3 × **13·1** mm.

**Habits.** Dodsworth has given an excellent and exhaustive account of this bird in the Bombay Natural History Journal (xxi, p. 1075, 1912). According to him they are gregarious, wandering about the well-wooded hillsides, feeding on various seeds and berries, especially those of the Sunflower when ripe. The note uttered by the cock is a loud "beez," but both sexes keep up a constant twittering, uttered even when they move from tree to tree with their swift but undulating flight.

## (1090) Hypacanthis spinoides ambiguus.

THE YUNNAN GREENFINCH.

*Serinus ambiguus* Oust., Bull. Mus. Paris, 1896, p. 186 (Yunnan).

**Vernacular names.** None recorded.

**Description.** Similar to the Himalayan Greenfinch but very much darker everywhere ; the forehead is never yellow, the crown and head are almost or quite black ; the upper plumage is darker and greener with only a wash of yellow on the rump ; the lower parts are olive-green washed with bright yellow on the breast and abdomen and the pale parts of the tail are bright yellow.

**Colours of soft parts.** Iris brown to dark brown ; bill pinkish-brown, bone-grey, pale grey-brown, the base and lower mandible palest ; legs pale fleshy-brown to grey-brown or dull brown (*Forrest & J. P. Cook*).

**Measurements.** Wing 77 to 81 mm.; tail 47 to 50 mm.; tarsus about 14 mm.; culmen about 10 to 11 mm.

**Distribution.** Shan States, Yunnan to Szechuan.

**Nidification.** The late Mr. J. P. Cook took a nest of this species at Kalaw, Shan States, on the 7th of July. He describes it as made of dry pine-needles and moss, lined sparingly with wool and feathers, but so loosely built that it came to pieces in his hand on removal. It was placed, well concealed, in the head of a pine-sapling six feet from the ground, close to his house. The four eggs are pale greenish-blue, sparingly spotted with black at the larger end, with one or two hair-like streaks. They measure from 17·9 × 13·3 to 19·0 × 14·0 mm.

**Habits.** Forrest found this bird common in Yunnan between 9,000 and 12,000 feet in pine-forests but Mr. Cook obtained it at much lower elevations in the Shan States.

## Genus CHRYSOMITRIS.

*Chrysomitris* Boie, Isis, 1828, p. 322.

Type, *Chrysomitris spinus* Linn.

The genus *Chrysomitris* contains the Siskins, small birds of green plumage closely allied to the Linnets. In this genus the bill is small and very sharply pointed; the tail is slightly forked; the wing is long and pointed, the first or second primary being the longest. The sexes differ in colour, the female being streaked.

### (1091) Chrysomitris thibetana.

THE TIBETAN SISKIN.

*Chrysomitris thibetana* Hume, Ibis, 1872, p. 107 (Sikkim).
*Chrysomitris tibetana.* Blanf. & Oates, ii, p. 232.

**Vernacular names.** None recorded.

**Description.** Lores, a patch under the eye, an ill-defined supercilium reaching to the neck and meeting a still more weakly-defined collar bright yellow; upper plumage and wing-coverts olive yellow-green, the back and scapulars faintly streaked with dark brown, sometimes hardly visible; rump brighter and more yellow; tail dark brown, the feathers edged outwardly with olive-yellow; greater wing-coverts and quills dark brown, edged with olive-yellow, most broadly so on the inner secondaries; under-parts deep yellow, washed with olive on the sides of the neck and flanks; axillaries and under wing-coverts yellowish white.

**Colours of soft parts.** Iris brown; bill pinkish grey; legs fleshy-grey.

**Measurements.** Total length about 120 to 125 mm.; wing 69 to 71 mm.; tail 41 to 43 mm.; tarsus 13 to 14 mm.; culmen about 9 to 10 mm.

**Female.** Similar to the male but paler and duller; the upper parts are streaked practically throughout with dark brown and the lower the same except on the throat and upper breast.

**Young birds** are like the female but more extensively streaked. The abdomen, vent and under tail-coverts are more white and less yellow.

**Distribution.** Sikkim and Tibet.

**Nidification.** Very little known. Whymper's and Ward's collectors procured one nest in Ladakh, and Masson and Macdonald obtained nests and eggs for me in Native Sikkim at about 14,000 feet. These vary from those of *Hypacanthis s. spinoides* in being rather smaller, the eggs being about 18·0 × 13·3 mm.

**Habits.** Apparently a bird of very high elevations, even in Winter not venturing far below the snow-line. It frequents thin forest and open hillsides, feeding on grass- and other seeds and berries.

## Genus **FRINGILLA.**

*Fringilla* Linn., Syst. Nat., 10th ed. i, p. 179 (1758).

Type, *Fringilla cœlebs* Linn.

The genus *Fringilla* contains the typical Finches such as the Chaffinch and Brambling. In this genus the plumage is of many colours and the Summer and Winter plumages are very different owing to abrasion of the coloured edges to the feathers. The bill is long and straight, except at the tip, and fairly stout. The tail is very slightly forked and the wings long with the second, or second and third, primary longest.

*Key to Species.*

A. Rump green ..... *F. cœlebs*, p. 163.
B. Rump white ..... *F. montifringilla*, p. 164.

### (1092) Fringilla cœlebs cœlebs.

THE CHAFFINCH.

*Fringilla cœlebs* Linn., Syst. Nat., 10th ed. i, p. 179 (1758) (Sweden).

**Vernacular names.** None recorded.

**Description.—Adult male.** Forehead black; crown, nape and neck dark blue-grey, or slaty-blue; mantle chestnut-brown, the bases of the feathers grey and sometimes showing through; lower back and rump dark grass-green; upper tail-coverts and central tail-feathers ashy blue-grey; remaining tail-feathers black, the outermost almost entirely white on the inner web and the one next it with a large diagonal patch of white; lesser and median wing-coverts white; greater coverts black, tipped with white; primaries black, edged with pale yellow and with a white patch at the base of all but the first three; secondaries black, the outer edged with

yellow on the terminal two-thirds, the inner broadly edged with white throughout and the innermost with light brown; lores, eyebrows and cheeks deep vinous-red, chin, throat, breast and flanks the same but a little paler; centre of abdomen, vent and under tail-coverts white.

**Colours of soft parts.** Iris hazel; bill fleshy-brown, or fleshy-grey to slaty-blue; legs and feet fleshy-brown, pale horny-brown to brown.

**Measurements.** Total length about 160 mm.; wing 78 to 90 mm.; tail 57 to 65 mm.; tarsus 15 to 18 mm.; culmen 11 to 13 mm.

**Female.** Head, neck, scapulars and back dull chestnut-brown washed with green; rump, upper tail-coverts and tail as in the male; lesser wing-coverts ashy grey-brown, median coverts white; greater coverts dark brown with white tips, quills as in the male but browner; sides of the head and ear-coverts ochraceous-brown, faintly white-shafted; chin, throat, and upper breast ashy-brown, becoming more a smoky-brown on the lower breast and flanks and whitish on the centre of the abdomen; vent and under tail-coverts white.

**Male in Winter.** Upper parts much duller owing to the feathers being edged with greyish.

**Nestlings** are like the adult female but very dull in all their colours.

**Distribution.** Practically the whole of Europe, the whole of Northern Asia to East Siberia; Palestine, Asia Minor, Transcaspia, Turkestan, Persia, Tian Schan and once in India.

**Nidification.** The Chaffinch breeds during April, May and June, building a beautiful little cup-shaped nest of moss and lichen, more or less mixed with grass, roots, etc., very neatly lined with hair and sometimes a little thistle-down. Outside it is always finished off with lichen, spiders' webs and egg-bags and green moss. It may be placed in any hedge, small tree or hawthorn. The eggs number four or five and have a dull pale pink or olive ground-colour, marked with blotches and spots of purple-red or purple-brown. One hundred eggs average 19·3 × 14·6 mm. (*Witherby*).

**Habits.** This bird has once occurred in India, a specimen having been obtained by Capt. C. H. T. Whitehead at Hangu, 25 miles north of Kohat.

## (1093) Fringilla montifringilla.

THE BRAMBLING.

*Fringilla montifringilla* Linn., Syst. Nat., 10th ed. i, p. 179 (1758) (Sweden); Blanf. & Oates, ii, p. 233.

**Vernacular names.** None recorded.

**Description.—Adult male.** Sides of head and neck, crown, nape,

neck and back black; rump and upper tail-coverts white in the centre, black at the sides; tail black, margined narrowly with white, the white extending on the outermost feathers to the inner web on the basal half; lesser wing-coverts and scapulars bright rufous; visible median wing-coverts white, greater coverts black, tipped with white or pale rufous; quills black, edged with whitish yellow and with a white patch at the base of all but the first three; inner secondaries edged with rufous; chin, throat and breast orange-rufous; flanks buffy-rufous or buffy-white, more or less spotted with black; abdomen white; under tail-coverts white tinged with rufous; axillaries and under wing-coverts pale yellow.

**Colours of soft parts.** Iris hazel; bill black or horny-black in the breeding-season, horny-yellow with darker tip and culmen in Winter; legs and feet fleshy-brown.

**Measurements.** Total length about 170 mm.; wing 89 to 94 mm.; tail 63 to 66 mm.; tarsus 18 to 19 mm.; culmen about 12 to 13 mm.

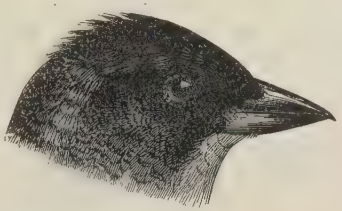


Fig. 40.—Head of *F. montifringilla*.

**Female.** Head, neck and back blackish, each feather with a broad rufous fringe; rump and shorter upper tail-coverts white; longer tail-coverts brown, edged with olive-rufous; tail as in the male; wings brown instead of black, the edges to the primaries more yellow and the innermost secondaries very broadly edged with rufous; sides of the head dull vinous-rufous; chin almost white; underparts as in the male but much paler.

The female is decidedly smaller than the male; wing 83 to 89 mm.

**Male in Winter.** Has all the feathers of the upper parts broadly edged with rufous-grey and the edges to the wing-feathers also much broader and more rufous. In this stage the male is much more like the female.

**Young birds** differ from the female in having the abdomen and rump much more yellowish; the median and greater coverts are dark brown with buff tips.

**Nestling in down** white.

**Distribution.** Breeds throughout Northern Europe and Asia from Norway to Kamschatka. In Winter South to the greater part of Southern Europe; Central Asia to North-West India,

Tibet and the greater part of North and Central China, East to Japan.

**Nidification.** Breeds in Northern Europe and North-West Asia from late May to the middle of June, making a nest which is a large, rather untidy edition of that of the Chaffinch. The eggs, five to eight in number, are like those of the Chaffinch but even more varied. "One hundred eggs average 19·5 × 14·6 mm." (*Witherby*).

**Habits.** Frequents both open bush-covered hillsides and the outskirts and thinner parts of birch- and pine-woods. In Winter migrates South in enormous flocks and also extends from the Scandinavian countries West to England and Western Europe. It feeds on seeds and berries and in Autumn very largely on beech-nuts.

## Genus GYMNORIS.

*Gymnoris* Hodgson in Gray's Zool. Misc., p. 84 (1844).

Type, *Gymnoris flavicollis*=*xanthocollis* Burton.

The genus *Gymnoris* is somewhat intermediate between the true Finches and the Sparrows but is nearer the latter. It differs, however, in its more slender, well-curved bill and in not having a colour-pattern on the wings. Like the true Sparrows it has an Autumnal moult and the young are less downy than those of the true Finches.

## Gymnoris xanthocollis.

*Key to Species.*

A. Much darker; lesser wing-coverts deep chestnut ..... *G. x. xanthocollis*, p. 166.
B. Much paler; lesser wing-coverts brick-red. *G. x. transfuga*, p. 168.

## (1094) Gymnoris xanthocollis xanthocollis.

The Yellow-throated Sparrow.

*Fringilla xanthocollis* Burton, Cat. B. Mus. Fort Pitt, Chatham, p. 23 (1838) (Bengal).
*Gymnorhis flavicollis*. Blanf. & Oates, ii, p. 235.

**Vernacular names.** *Raji*, *Jungli-churi* (Hind.); *Adavi-pichike*, *Konde-pichike*, *Cheruka-pichike* (Tel.).

**Description.—Adult male.** Whole upper plumage light earth-brown, a little paler on the rump and upper tail-coverts and darker on the wing- and tail-feathers; lesser wing-coverts dark chestnut, median coverts tipped with white and greater coverts and inner secondaries with white or pale buff; primaries, outer secondaries and tail-feathers very narrowly edged with buff or

rufous-buff; chin nearly white, a patch of bright yellow on the throat; remainder of lower plumage pale ashy-brown, the centre of the abdomen whitish and the under tail-coverts pure white.

**Colours of soft parts.** Iris dark brown; bill all black when breeding; brown above at other times in the male and always in the female, paler yellowish or livid white below; legs and feet greyish- or greenish-plumbeous.

**Measurements.** Total length about 150 mm.; wing 78 to 83 mm.; tail 49 to 54 mm.; tarsus about 17 mm.; culmen 12 to 13 mm.

**Female** like the male but the yellow throat-spot pale or wanting and the wing-patch duller and more brick-red.

**Young birds** are like the female but have no throat-spot at all and no wing-patch.

**Distribution.** Practically the whole of India excluding the area of the next form in Sind and the North-West Frontier. It occurs in Ceylon and also in the Himalayas up to about 4,000 feet; in Bengal it is not rare in the West but is seldom if ever met with East of Rajmehal. I have never seen it in Assam. Sir S. M. Robinson records this bird as breeding in the Shan States at Kalau. The bird was shot and identified by him.

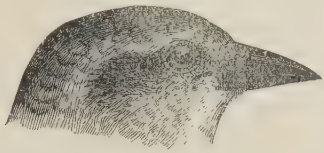


Fig. 41.—Head of *G. x. xanthocollis*.

**Nidification.** This little Sparrow breeds principally in April throughout its range but continues through May and sometimes into June. They make their nests of grass but often mix this with leaves, wool, hair, fur or any other rubbish, though the lining seems to be always of feathers. They place them in holes of trees, either natural or made by Woodpeckers and Barbets. Betham, however, found that in Poona the favourite site was a lamp-post. The eggs, three or four in number, are like small eggs of the House-Sparrow. The ground is white, greenish-white or yellowish-white, profusely marked all over with smudges, blotches, spots and longitudinal streaks of dull brown, grey-brown or sepia. Most eggs are profusely marked all over but others are more sparingly and boldly marked. Eggs in the same clutch often vary greatly but there does not seem to be invariably one egg different to the rest, as is the case with so many Sparrows. One hundred eggs measure barely 19·0 × 13·9 mm.: maxima **21·1** × 14·2 and 20·0 × **15·0** mm.; minima **16·0** × **12·9** mm. As a whole they are very dingy, glossless eggs.

**Habits.** This bird, although so aberrant in the shape of its bill, is in all other respects a typical Tree-Sparrow. Though not gregarious in the true sense of the word, it is intensely sociable and numbers may be found feeding, roosting, fighting and even nesting together. It ascends the hills of South India and the Himalayas up to some 4,000 feet and appears to be resident wherever found, except in the Punjab, where Whistler reports it as a summer visitor, arriving in March and April and leaving in September. Dewar and Currie also say that it is absent from Lahore from October to March. It is probable, however, that these movements are very local; on the other hand, the birds which move do so in flocks, which certainly presumes a regular migration.

### (1095) Gymnoris xanthocollis transfuga.

THE SIND YELLOW-THROATED SPARROW.

*Gymnoris flavicollis transfuga* Hartert, Vög. Pal., i, p. 145 (1903) (Baluchistan).

**Vernacular names.** *Raji, Jungli-churi* (Hind.).

**Description.** Differs from *G. x. xanthocollis* in being much paler; above a sandy, ashy-brown and below a paler grey; the wing-spot is duller, more a brick-red than a chestnut and the yellow of the throat is also paler.

**Colours of soft parts** as in the preceding bird.

**Measurements.** About the same as in the preceding bird. Wing 78 to 84 mm.

**Distribution.** Persia and Persian Mesopotamia, Afghanistan, Baluchistan, Sind to Cutch, and possibly the Western part of the Punjab, where the two races meet.

**Nidification.** Similar to that of the preceding bird, whilst the eggs are indistinguishable from those of that race. Owing to the lack of trees the Sind Yellow-throated Sparrow builds more in holes in buildings or, like those found by Betham in Poona, in the hollows of lamp-posts.

**Habits.** Those of the Common Yellow-throated Sparrow.

## Genus PASSER.

*Passer* Brisson, Orn., i, p. 36 (1760).

Type, *Passer domesticus* Linn.

The genus *Passer* contains the true Sparrows which are well represented over the greater part of the Old World. In the genus, as restricted by Oates, both sexes exhibit a double half hour-glass shaped rufous patch on the base of the primaries; the bill is short and stout and the culmen slightly curved.

*Key to Species.*

A. Back streaked with black.
  *a*. No supercilium.
    *a'*. Crown of head ashy-grey.
      *a''*. Chin, throat and whole breast black ..... *P. domesticus*, ♂, p. 169.
      *b''*. Chin and upper throat only black ..... *P. pyrrhonotus*, ♂, p. 174.
    *b'*. Crown of head red or rufous.
      *c''*. Chin, throat and breast black.. *P. hispaniolensis*, ♂, p. 175.
      *d''*. Chin and throat only black.
        $a^3$. A black patch on ear-coverts. *P. montanus*, p. 176.
        $b^3$. No black patch on ear-coverts. *P. rutilans*, ♂, p. 179.
  *b*. A supercilium.
    *c'*. Lower plumage more or less streaked ..... *P. hispaniolensis*, ♀, p. 175.
    *d'*. Lower plumage unstreaked.
      *e''*. No yellow on lower plumage.
        $c^3$. Ear-coverts white ..... *P. domesticus*, ♀, p. 169.
        $d^3$. Ear-coverts grey ..... *P. pyrrhonotus*, ♀, p. 174.
      *f''*. Lower plumage decidedly yellow ..... *P. rutilans*, ♀, p. 179.
B. No black streaks on back ..... *P. flaveolus*, p. 182.

## Passer domesticus.

*Fringilla domestica* Linn., Syst. Nat., 10th ed. i, p. 183 (1758).

Type-locality: Sweden.

Differs from our Indian forms in being rather larger and in not having such pure white ear-coverts and underparts.

The type of *Passer indicus* is in the Tring Museum, a specimen given by Selby to Jardine. This is a bird of the rather pale Indian race found from Sind and Cutch to the extreme North-West and is not of the smaller deep red type found in South India, Burma, etc. or of the larger deep red breeding birds of the Himalayas. The plate given in Jardine and Selby's 'Illustrations of Ornithology,' on the other hand, depicts an exceptionally deep red bird, evidently drawn and painted from a specimen procured from a district other than that whence the actual type came *.

There are three well-marked races of House-Sparrows found in India: the typical form (not that shown in Jardine & Selby's plate) breeding in the driest portions of the Empire on the West, North-West, and West Central areas, a second breeding in the Himalayas and Tibet between 5,000 and 17,000 feet, and a third inhabiting South India, East India, Assam, Burma, etc.

* Mr. N. B. Kinnear informs me that the bird from which the painting was made was given by Atherton to Selby and is mentioned by him in a letter to the latter. It was taken by him in Bangalore. The original letter is now in the British Museum.

*Key to Subspecies.*

| | |
|---|---|
| A. Chestnut paler, black stripes more narrow; white wing-patch not conspicuous | *P. d. indicus*, ♂, p. 170. |
| B. Chestnut deeper, black stripes bolder and broader; white wing-patch very conspicuous. | |
| *a*. Larger; wing ♂ 76 to 81 mm. | *P. d. parkini*, ♂, p. 173. |
| *b*. Smaller; wing ♂ 69 to 74 mm. | *P. d. confucius*, ♂, p. 172. |
| C. Paler above, generally with a more distinct supercilium | *P. d. indicus*, ♀, p. 171. |
| D. Darker above, generally with an indistinct supercilium. | |
| *c*. Larger; wing 73 to 76 mm. | *P. d. parkini*, ♀, p. 173. |
| *d*. Smaller; wing 65 to 72 mm. | *P. d. confucius*, ♀, p. 172. |

## (1096) Passer domesticus indicus.

THE INDIAN HOUSE-SPARROW.

*Passer indicus* Jard. & Selby, Ill. Orn. iii, p. 118, 1831 (Continental India, restricted to *Karachi, Sind*).
*Passer domesticus*. Blanf. & Oates, ii, p. 236.

**Vernacular names.** *Gouriya* (Hind. in the North); *Churi, Khas Churi* (Hind. in the South).

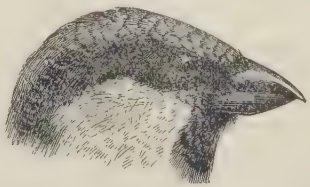


Fig. 42.—Head of *P. d. indicus*.

**Description.—Male.** Lores, feathers next to the bill and round the eye black; forehead, crown and nape ashy-grey; a streak from behind the eye, running down the sides of the neck, over and behind the ear-coverts chestnut, seldom very marked in this race, and with ashy-grey tips obscuring the chestnut; back and scapulars chestnut, the outer webs more or less margined with fulvous and the inner webs with broad central streaks of black; rump and upper tail-coverts ashy-grey, the longest coverts browner and with black shaft-stripes; tail brown, edged with fulvous; lesser wing-coverts dark chestnut; median wing-coverts brown at the base, white tinged with buff or fulvous on the visible portions, greater coverts chestnut with fulvous edges and concealed black centres; primaries dark brown, edged with chestnut-fulvous,

broader at the base, forming a definite patch, inner secondaries black with broad chestnut-fulvous edges; chin, throat and centre of breast black, in fresh plumage edged with white; cheeks, ear-coverts and sides of the neck white; remainder of lower plumage white, tinged with fulvous-ashy.

**Colours of soft parts.** Iris brown; bill black during the breeding season, pale yellowish-horn in the non-breeding season; legs and feet pale brown.

**Measurements.** Total length about 155 mm.; wing, ♂ 70 to 79 mm., ♀ 70 to 76 mm.; tail 52 to 56 mm.; tarsus 17 to 19 mm.; culmen 11 to 13 mm.

In Summer after the feathers become abraded the upper parts become more chestnut, though never so much as in the two following races, and the black of the throat and breast rather more extensive and purer with no white edges.

**Female.** Head above, upper back, rump and extreme upper tail-coverts ashy grey-brown; back and scapulars fulvous-rufous with broad black streaks; tail brown edged fulvous; lesser wing-coverts chestnut-brown; median black, broadly tipped with fulvous-white; greater coverts black, edged and tipped with rufous-white, quills blackish-brown, edged with fulvous; a pale rufous-white, or fulvous, supercilium to the nape; lores and round the eye whitish; a patch behind the eye dark brown; whole lower plumage fulvous ashy-white, often a little darker on the breast and flanks.

**Distribution.** Roughly the area of this Sparrow may be taken as Kathiawar, Cutch, Sind, Baluchistan, Punjab and North-West Frontier Provinces to Gilgit; Rajputana, the United Provinces, Northern Central India into Bihar and Chota Nagpur. Outside India this bird is found in Western Persia, Mesopotamia, Southern Arabia to Transcaspia. The Northern and Eastern Persian forms, judging from their eggs, seem very large and are possibly more nearly allied to *parkini* but material for comparison is wanting. The North-Western Sparrow ascends the Himalayas to some height and is found at Simla and other hill-stations, though probably not indigenous to these places.

**Nidification.** The nesting of the House-Sparrow is too well known to need much description. It builds its untidy nest of grass, thatch, straw and other oddments, lined with feathers, in any hole in almost any position, house, tree, wall or well, sometimes even it makes a large ball-like nest in trees. In Persia, where trees are scarce, it builds often in low bushes. The eggs vary from three to six, occasionally seven or eight, and have a white or greenish-white ground-colour. The markings, generally very profuse, are of some shade of grey-brown, brown or greenish-grey brown often scattered profusely over the whole egg, sometimes more scanty and bolder in type and confined principally to the larger end. One hundred Indian eggs average

20·6 × 14·9 mm. and one hundred Persian eggs 21·3 × 15·4 mm.: maxima **23·0** × 16·0 and 21·3 × **16·4** mm.; minima **16·6** × 14·4 and 20·0 × **14·1** mm. The breeding-season seems to be principally March and April but Doig says they breed every month of the year in Sind whilst Ticehurst thinks they breed there from March to October. In the hills they breed from May to July or later.

**Habits.** Where man is to be found, there the Sparrow will be found also and when mankind breaks new ground in forest, swamp or desert, the Sparrow will follow in his steps and make what he can out of him and at the same time do his best to oust others of his own genus who may be indigenous to the place. In India, as in England, his conceit is overweening, his pugnacity great and his good qualities negligible. He loves society, chiefly that he may have a good scrap whenever he so desires. He imagines he can sing but has no voice and even his own wife gets intensely bored with his pertinacity and monotony. Finally he is very greedy and often seeks for his food in most unsavoury places.

## (1097) **Passer domesticus confucius.**

THE BURMESE HOUSE-SPARROW.

*Passer confucius* Bonaparte, Notes Orn. Coll. Delattre, p. 14 (1854) (China *in errore*; Rangoon).
*Passer domesticus.* Blanf. & Oates, ii, p. 236 (part).

**Vernacular names.** *Churi* and *Khas Churi* (Hind. in the South); *Uri-pichike* (Tel.); *Adiki-lam-kuravi* (Tam.); *Charia* or *Chata* (Beng.); *Giriya-sorai* (Assam).

**Description.** Similar to the last but much deeper chestnut above and with the deep chestnut post-ocular stripe broader, purer and produced further down the sides of the neck; the black on the breast is more extensive and, generally, the wing-patch is more extensive and a purer white. The females are darker above and on the whole greyer and not so fulvous in tint.

**Colours of soft parts** as in the other races.

**Measurements.** Total length about 150 mm.; wing, ♂ 69 to 74 mm., ♀ 65 to 72 mm.; Nepal and Sikkim birds are bigger, 72 to 78 mm., intermediate between this form and *parkini*. These are probably all birds of considerable elevation.

**Distribution.** Ceylon, India South and East of the range of *P. d. indicus*, Assam, Burma East to Karenni and South to Moulmein. Oates records it from Cochin China but I do not know on what authority.

**Nidification.** Similar to that of the preceding race. One hundred eggs average 20·7 × 14·8 mm.: maxima **23·0** × 15·0 and

20·3 × **15·5** mm.; minima **17·8** × 14·8 and 19·0 × **13·8** mm. The breeding-season is from April to July but nests may be found in any month of the year and many birds have three or even more broods.

**Habits.** Those of the species. Like all House-Sparrows, wherever it goes it bullies and turns out the Tree-Sparrow or Cinnamon Sparrow from the haunts of man. It usurps their nesting-places, takes their food and by sheer persistence finally establishes itself in their place.

## (1098) Passer domesticus parkini.

THE KASHMIR HOUSE-SPARROW.

*Passer domesticus parkini* Whistler, Bull. B. O. C., xli, p. 13 (1920) (Srinagar).
*Passer domesticus.* Blanf. & Oates, ii, p. 236 (part).

**Vernacular names.** *Gouriya* (Hind.).

**Description.** Very similar to *P. d. confucius* but decidedly bigger. The chestnut on the male is even deeper on the wings and the black on the breast is generally more extensive. The females are decidedly darker and more smoky-grey below.

**Colours of soft parts** as in the other races.

**Measurements.** Wing, ♂ 76 to 82 mm.; ♀ 73 to 76 mm.

**Distribution.** Kashmir, Ladakh and Tibet, wandering extensively in winter, at which season specimens have been obtained over the greater part of North-West India, Baluchistan, Kandahar and South Persia. Birds from Nepal and Sikkim are intermediate and more *breeding* specimens are needed before one can definitely ascertain what are resident breeding birds and what are merely casual visitors.

**Nidification.** Similar to that of the other races, breeding in practically every house of every village in Ladakh, Kashmir and Eastern Tibet between 5,000 and 15,000 feet. It breeds in the lower hills between April and July, often having second or even third broods up to September. In the higher mountains the season is more restricted, eggs being laid from June to August. Sixty eggs average 21·3 × 15·2 mm.: maxima **22·6** × 15·3 and 22·0 × **15·0** mm.; minima **20·0** × 14·6 and 22·0 × **14·5** mm.

**Habits.** Like those of the species but vast numbers of these birds migrate in autumn to the plains of Sind and North-West India. At the same time Osmaston shows that a great number of birds remain in Kashmir throughout the winter and there is certainly no great migration of Sparrows into the lower hills and adjacent plains of the United Provinces and Bihar.

## (1099) Passer pyrrhonotus.

THE SIND JUNGLE-SPARROW.

*Passer pyrrhonotus* Blyth. J. A. S. B., xiii, p. 946 (1844) (Sind); Blanf. & Oates, ii, p. 238.

**Vernacular names.** None recorded.

**Description.—Male.** Upper plumage, wings and tail practically identically the same as in *Passer domesticus indicus*; the ear-coverts are more grey, the posterior coverts often being quite a dark grey; the black below is confined to the chin and throat and never extends to the breast; the rest of the lower plumage s pale ashy, purer white on the centre of the abdomen and under tail-coverts.

**Colours of soft parts.** Iris dark brown; "bill in Winter dark brown above, yellow-brown below; bill in Summer black; legs and feet brownish" (*Ticehurst*).

**Measurements.** Total length about 125 mm.; wing 65 to 68 mm.; tail 50 to 53 mm.; tarsus about 16 to 17 mm.; culmen about 11 mm.

**Female.** Differs from that of *P. d. indicus* only in size.

**Distribution.** Sind and Punjab.

**Nidification.** The Sind Jungle-Sparrow breeds wherever found, making a large untidy nest of tamarisk twigs and grass, densely lined with feathers and with the entrance near the top. It is placed in tamarisk or other bushes and on the upper branches of Acacias growing in or close to water. The eggs number two to four and are small dull replicas of those of the Common House-Sparrow, very dingy and dark on an average and without any gloss. Thirty eggs average 18·1 × 13·2 mm.: maxima **19·0** × 13·1 and 17·7 × **14·0** mm.; minima **16·2** × 13·3 and 16·5 × **12·9** mm. In Sind it breeds principally in April and May. Currie and A. E. Jones found nests with eggs near Lahore in May, June and August and Whistler saw nests at Jhang in September. It almost certainly has two broods in the year.

**Habits.** This little Sparrow is essentially a frequenter of river-banks, lakes and swamps and is never found at any great distance from water. It is not a House-Sparrow and does not haunt buildings unless well surrounded by cover, keeping to Tamarisk-, Acacia- and grass-jungle. It is rather shy, avoiding observation unless that is quietly conducted and retreats into the thick lower grasses and bushes when disturbed. It lives almost entirely on seeds and its note is said to be a low, soft edition of that of the Common House-Sparrow. It is very sociable, generally collecting in flocks from half a dozen or so to some twenty or thirty and even during the breeding-season they keep close together.

## Passer hispaniolensis.

*Fringilla hispaniolensis* Temm., Man. d'Orn., p. 353 (1820).

Type-locality: Gibraltar.

Our Indian form *transcaspicus* differs in being rather paler and in having a shorter bill.

## (1100) Passer hispaniolensis transcaspicus.

Tschusi's Sparrow.

*Passer hispaniolensis transcaspicus* Tschusi, Orn. Jahrb., 1903, p. 80 (Trans-Caucasia).
*Passer hispaniolensis.* Blanf. & Oates, ii, p. 239.

**Vernacular names.** None recorded.

**Description.—Male.** Lores and round the eye black; a short supercilium from the bill to the centre of the eye white; crown, nape and neck deep chestnut; back and scapulars bright fulvous, each feather broadly streaked with black on the inner web; rump fulvous-ashy with obsolete dark centres; tail dark brown, edged with fulvous; lesser wing-coverts deep chestnut; median wing-coverts fulvous-white with concealed black bases; greater coverts chestnut-fulvous, paler at the tips and with broad black centres; quills black, all but the first primary edged fulvous and with the usual broader Sparrow-patch at the base of the inner primaries; ear-coverts and sides of neck white; chin, centre of throat and fore-neck and whole breast black; flanks white, boldly streaked with black; centre of abdomen, vent and under tail-coverts white, generally tinged with fulvous; thighs white and black; axillaries and under tail-coverts white.

**Colours of soft parts.** Iris hazel; bill in Summer black; in Winter horny-brown, yellowish below and at the base; legs and feet horny-brown.

**Measurements.** Total length about 160 mm.; wing 78 to 84 mm.; tail 55 to 59 mm.; tarsus about 19 to 20 mm.; culmen 12 to 14 mm.

**After the autumn moult** the chestnut above is fringed with ashy and the black throat and breast with white, in each case the fringes at first almost obliterating the darker colour.

**Female.** Like the female of the House-Sparrow but with the underparts showing faint striations, always more definite and sometimes conspicuous on the breast.

**Distribution.** Breeding in Trans-Caucasia, Transcaspia, East to Turkestan, South to Palestine, Afghanistan, Baluchistan and Kashmir. In Winter into Sind, North-West Frontier Provinces, Punjab and United Provinces.

**Nidification.** Tschusi's Sparrow breeds in great numbers in

Palestine, making their nests in colonies in the Eucalyptus-trees on the banks of streams. The nest is the usual large globular affair, untidy and unfinished, made of all sorts of materials and lined with feathers. The eggs, four to six in number, are typical Sparrows' eggs but on an average are very clean, brightly coloured eggs with a pure white ground and comparatively few bold specks and spots. One hundred eggs average 21·6 × 15·4 mm.: maxima **23·4** × 15·1 and 21·2 × **16·2** mm.; minima **18·9** × **14·1** mm. The breeding-season appears to be April and May, some birds having second broods in June and July.

**Habits.** This Sparrow is purely a jungle bird or a frequenter of orchards and groves rather than houses and other human buildings. In Sind, Ticehurst found it in grass-lands in the long "khan" grass. It is said to have a swifter flight than the House-Sparrow and a shriller voice. Like all Sparrows it is a grain- and seed-eater, except during the breeding-season, when the young of all the different species are fed on insects, caterpillars etc., the adults also eating these at that time together with their normal food.

## Passer montanus.

*Key to Subspecies.*

A. Smaller, wing almost invariably under 75 mm.
  *a.* Rump brown or yellowish-brown .... *P. m. montanus*, p. 176.
  *b.* Rump very rufous-brown..... *P. m. malaccensis*, p. 177.
B. Larger, wing almost invariably over 76 mm.
  *c.* Much paler, especially above, rump not rufous ..... *P. m. dilutus*, p. 178.
  *d.* Much darker, rump very decidedly rufous ..... *P. m. obscuratus*, p. 179.

### (1101) Passer montanus montanus.

THE TREE-SPARROW.

*Fringilla montana* Linn., Syst. Nat., 10th ed. i, p. 183 (1758) (North Italy).
*Passer montanus.* Blanf. & Oates, ii, p. 240.

**Vernacular names.** None recorded.

**Description.** Lores and under the eye black; forehead to nape dark maroon-chestnut; back and scapulars chestnut, with the inner webs broadly black next the shaft; rump and upper tail-coverts brown, with a yellowish tinge in quite freshly-moulted birds; tail black, edged with pale reddish-fulvous; lesser wing-coverts dark chestnut; median coverts black, broadly tipped with white; greater coverts black, mostly chestnut on the outer webs and tipped with white; quills black, edged with chestnut, with the usual broader patch at the base of all but the first primary; a

patch of black on the anterior ear-coverts; sides of head and neck white; chin and throat black; rest of lower plumage ashy-white, purest on the abdomen, darkest on the breast and flanks.

**Colours of soft parts.** Iris dark brown; bill black; legs pale fleshy-brown, the claws black; in the non-breeding season the bill is not so black, especially at the base and on the gonys.

**Measurements.** Total length about 140 mm.; wing 65 to 73 mm.; tail 51 to 54 mm.; tarsus about 16 to 18 mm.; culmen 9 to 10 mm.

**The Nestling** is fulvous-brown above, with dark patches on the back and scapulars and no chestnut on the head; the lower parts, including chin and throat, are pale fulvous.

**Distribution.** Breeding over practically the whole of Europe and through Northern Asia to East Siberia. In Winter wandering much farther South and there are two specimens in the British Museum Collection, obtained by Capt. C. H. T. Whitehead at Kohat and Peshawar, which I cannot distinguish from British birds. They were obtained in February and March, 1908.

**Nidification.** The Tree-Sparrow breeds practically throughout Europe and North-Western Asia. It makes an untidy nest of grass, feathers, wool and other oddments, which it places in holes in trees, walls, banks, thatched roofs, deserted nesting-holes of Sand-Martins, etc. I have taken fresh eggs from early April to late June and many birds must have two broods. The eggs number four to six and are like those of the House-Sparrow but darker, generally less definitely spotted or blotched and with a rather less glossy surface. One hundred eggs average 19·5 × 14·0 mm. (*Witherby*).

**Habits.** The Tree-Sparrow is not so exclusively a hanger-on to humanity as is the House-Sparrow and may be found both in woods and open cultivated country far removed from houses. In flight, voice, food etc., however, it closely follows its town cousin.

## (1102) Passer montanus malaccensis.

THE MALAY TREE-SPARROW.

*Passer malaccensis* Dubois, Faun. Ill. Vert. Belge, Ois., i, p. 572 (1885) (Malacca).
*Passer montanus.* Blanf. & Oates, ii, p. 240 (part).

**Vernacular names.** *Choto Gouriya* (Hind.); *Nok kra-chak ban* (Siam); *Sendung* (Manipuri).

**Description.** A decidedly redder bird than the European Tree-Sparrow, the rump being strongly tinged with rufous; below they are all rather darker and, perhaps, also more tinged with rufous.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 67 to 71 mm.; tail 52 to 55 mm.; tarsus 17 to 18 mm.; culmen about 10 to 11 mm.

**Distribution.** The lower Himalayas from Kuman and Kashmir to Eastern Assam, the Hills of Burma and Malay Peninsula to Java, Sumatra and Borneo. East to Siam, Yunnan and South-West China. Birds from Northern China seem to be intermediate between *montanus* and *malaccensis*.

**Nidification.** The Malay Tree-Sparrow breeds practically throughout the year in the warmer parts of its range but in the hills most eggs are laid in May and June, many birds, however, having second broods in July and August. It frequents both light forest and open country and human habitations and where these have thatch roofs they form their favourite nesting-sites. The nest, whether placed in a hole in tree, wall, thatch or burrow, is just a pad of grass, thatch and other oddments with a thick lining of feathers. The eggs, four to six in the North, three to five in the South, are like those of the House-Sparrow except in size but average darker and duller in colour and have no gloss. One hundred eggs average 19·2 × 14·2 mm.: maxima **21·3** × 15·0 and 21·2 × **15·1** mm.; minima **17·0** × 13·5 and 18·6 × **13·1** mm.

**Habits.** The Tree-Sparrow ascends the Himalayas up to some 7,000 feet or a little over. Stevens found it at about 7,200 feet near Darjiling and it probably occurs above this height in Kashmir. It may move vertically to some extent with the season but it is equally common all the year round both in the plains of Assam and at 6,000 feet in the hills. Until turned out by the House-Sparrow it keeps far more to houses than does the European House-Sparrow but once the House-Sparrow arrives, the Tree-Sparrow has to make way for it and then resorts to trees for nesting, roosting and feeding.

## (1103) Passer montanus dilutus.

THE AFGHAN TREE-SPARROW.

*Passer montanus dilutus* Richmond, Proc. U.S. Nat. Mus., xviii, p. 575 (1895) (Kashgar).
*Passer montanus.* Blanf. & Oates, ii, p. 240 (part).

**Vernacular names.** None recorded.

**Description.** A paler bird than any of the other races of Tree-Sparrow; the crown and nape more vinous than maroon; the upper parts fulvous-chestnut rather than rufous-chestnut and the rump and upper tail-coverts light yellowish-brown; below much paler.

**Colours of soft parts** as in the Common Tree-Sparrow but the bill seems never to be entirely black, the base always being paler.

**Measurements.** Wing 78 to 83 mm.; tail 50 to 55 mm.; tarsus 18 to 19 mm.; culmen about 10 to 11 mm.

**Distribution.** Turkestan, East Persia, Afghanistan, Yarkand and Gilgil, straggling into India along the North-West Frontier.

**Nidification** and **Habits.** Similar to those of the Malay Tree-Sparrow.

## (1104) Passer montanus obscuratus.

THE TIBETAN TREE-SPARROW.

*Passer montanus obscuratus* Jacobi, Abh. Ber. Mus. Tier. Dresden, xvi, p. 32 (1923) (Szechuan).

**Vernacular names.** None recorded.

**Description.** Similar to the European Tree-Sparrow but much larger. The material in the British Museum is very poor and the coloration differences, if any, are hard to define. The rump is almost as red as in *P. m. malaccensis*.

**Colours of soft parts.** "Iris dark brown; bill black, gape yellow; legs fleshy" (*Walton*).

**Measurements.** Wing 76 to 82 mm.; tail 61 to 63 mm.; tarsus 16 to 17 mm.; culmen about 10 to 11 mm.

**Distribution.** Tibet and Sikkim to Szechuan. A specimen obtained in the Abor Hills, wing 79 mm., seems to be of this race.

**Nidification.** The Tibetan Tree-Sparrow breeds from about 10,000 feet certainly up to 15,000 feet and possibly higher. It seems to keep even more exclusively to houses for breeding purposes than any of the other Tree-Sparrows, placing its nest—of the usual character—in holes in the roofs and walls and on the rafters. Rarely it selects holes in trees and now and then it nests in stone boundary walls. The eggs are of the typical Sparrow type and one hundred average 20·8 × 15·1 mm.: maxima **22·0** × 15·3 and 21·0 × **15·9** mm.; minima **19·5** × **13·9** mm.

The breeding-season lasts from April to July, most eggs being laid in May and June.

**Habits.** This Tree-Sparrow is extremely common all over South and East Tibet to Szechuan between 12,000 and 15,000 feet; it occurs some two thousand feet lower, but not commonly, and certainly ascends to 17,000 feet, even if it does not breed at this elevation. To what extent it ascends and descends in Summer and Winter is not known but it is undoubtedly resident at 12,000 feet in the Gyantse plateau all the year round. It has the usual cheerful, chirpy habits of its species with nothing special calling for remark.

## Passer rutilans.

*Fringilla rutilans* Temm., Pl. Col., iii, p. 488 (1829).

Type-locality: Japan.

Differs from all Indian forms in having practically no yellow on the cheeks and under plumage.

The division of *Passer rutilans* into geographical races is one which has been discussed at some length but it appears to me that *P. r. rutilans*, *P. r. intensior* *P. r. cinnamomeus* and *P. r. debilis* can all be maintained. These races follow exactly the same lines as those followed by other species divided into geographical races over a similar immense area. In Yunnan and the surrounding countries we have a much deeper-coloured bird with very little yellow showing on the under plumage; working East we obtain a paler bird, again more like the typical form except for the yellow under plumage and, finally, in the extreme North-West area we get a still paler form. The great individual variation owing to abrasion and bleaching renders comparison difficult and if such is undertaken, birds killed at the same time of the year must be selected.

*Key to Subspecies*

A. Lighter above and below and suffused with yellow when in full plumage.
  *a*. Slightly darker, especially on chestnut parts ..... *P. r. cinnamomeus*, p. 180.
  *b*. Slightly paler, especially on chestnut parts ..... *P. r. debilis*, p. 181.
B. Darker both above and below; not much suffused with yellow ..... *P. r. intensior*, p. 182.

## (1105) Passer rutilans cinnamomeus.

THE CINNAMON TREE-SPARROW.

*Pyrgita cinnamomea* Gould, P. Z. S., 1835, p. 185 (Himalayas, Bhutan, *Hartert*).
*Passer cinnamomeus.* Blanf. & Oates, ii, p. 240.

**Vernacular names.** *Lali gouriya* (Hind.); *Inkurui* (Kacha Naga); *Kang-chi-go-ma* (Tibet); *Sendang* (Manipuri).

**Description.—Male.** Lores and feathers under the eye black; forehead to upper tail-coverts bright chestnut-red, the feathers of the back with broad black marks on the outer webs and all with pale fringes which soon wear off; upper tail-coverts brown, with ashy-grey margins; tail dark brown, with fulvous-grey edges to each feather; lesser wing-coverts chestnut; median wing-coverts black, broadly tipped with white; greater coverts black, broadly edged with rufous and tipped paler; winglet and primary-coverts black; primaries and secondaries black, edged with fulvous and with the usual broader patch near the base; inner secondaries broadly edged with rufous or fulvous-rufous; chin and throat black, fringed with white until this wears off; a patch on either side of the throat yellow; sides of head and rest of lower plumage yellowish grey, more yellow on the flanks, abdomen and vent and all yellow on the under tail-coverts.

**Colours of soft parts.** Iris brown; bill black in Summer; horny-brown in Winter, yellowish below; legs and feet dark reddish-brown or horny-brown.

**Measurements.** Total length about 130 to 140 mm.; wing 65 to 79 mm.; tail 46 to 55 mm.; tarsus 16 to 19 mm.; culmen about 10 to 11 mm. Manipur birds are very small, wing 65 to 69 mm.; Assam birds measure 69 to 72 mm. and others 70 to 79 mm.

**Female.** A broad supercilium to the nape fulvous-white; a dusky line through the eye; upper plumage brown, suffused with rufous on the upper tail-coverts and lesser wing-coverts; wings and tail as in the male; sides of the head and whole lower plumage pale ashy-yellow.

**Distribution.** Eastern Himalayas, Nepal, Tibet and Eastern Assam, North and South of the Brahmaputra; Manipur, Northern Burma, West of the Irrawaddy.

**Nidification.** The Cinnamon Sparrow breeds from April to August, having at least two broods yearly. In places when there are villages without too many Tree-Sparrows to bully it, its favourite nesting-place is a thatch roof, in which it makes a tunnel for its nest. It also breeds in open country and forest and is very foud of holes in trees in clearings in forest. The nest and eggs are similar to those of the Tree-Sparrows but the latter are more glossy and richly coloured and, as a rule, more obtuse so that they look broader. One hundred eggs average 19·2×14·2 mm.: maxima **21·1** × 14·1 and 19·0 × **14·8** mm., minima **17·0**×**13·0** mm.

**Habits.** Similar to those of the Tree-Sparrows. It occurs up to about 7,500 feet throughout its range and breeds right down to the foot-hills but is not common below 2,000 feet. It is often found in forests and jungles far from any cultivation or building and probably originally was a purely forest bird. Its note is much sweeter and softer than that of any of the other Sparrows and it has quite an effective little chattering song which it repeats, sitting perched high up on the topmost bough of some forest giant. It is not gregarious during any part of the year and its flight is swifter and more direct than that of the Tree-Sparrows.

## (1106) Passer rutilans debilis.

THE KASHMIR CINNAMON SPARROW.

*Passer rutilans delilis* Hartert, Vög. Pal., i, p. 163 (1904) (Sind-Tal in Kashmir).
*Passer cinnamomeus.* Blanf. & Oates, ii, p. 240 (part).

**Vernacular names.** *Lali gouriya* (Hind.).

**Description.** Rather paler in both sexes and more decidedly yellow on the under plumage of the male.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 70 to 75 mm.

**Distribution.** The whole of the North-West Himalayas to Kuman and Garhwal.

**Nidification** and **Habits.** Similar to those of the preceding race. Forty eggs average 19·0 × 14·1 mm. The principal breeding months are April and May but many birds have second broods in June and July.

## (1107) Passer rutilans intensior.

THE YUNNAN CINNAMON SPARROW.

*Passer rutilans intensior* Rothschild, Bull. B. O. C., xliii, p. 11 (1922) (Mekong Valley).
*Passer cinnamomeus.* Blanf. & Oates, ii, p. 240 (part).

**Vernacular names.** None recorded.

**Description.** Both sexes, but more especially the female, very decidedly darker than in *P. r. cinnamomeus* and with less yellow on the plumage of the male.

**Colours of soft parts.** "Iris dark brown; bill black; legs and feet dull brown" (*Forrest*).

**Measurements.** Wing 69 to 77 mm.; culmen 11 to 12 mm.

**Distribution.** Yunnan and Burma, East of the Irrawaddy and South to Karenni.

**Nidification** and **Habits.** Nothing recorded beyond the fact that Forrest obtained it in pine-forests at 8,000 to 9,000 feet.

## (1108) Passer flaveolus.

THE PEGU HOUSE-SPARROW.

*Passer flaveolus* Blyth, J. A. S. B., xiii, p. 946 (1844) (Pegu); Blanf. & Oates, ii, p. 242.

**Vernacular names.** *Nok kra-chak pa* (Siam).

**Description.**—**Male.** Lores and around the eye black; forehead, crown, hind neck, rump and upper tail-coverts olive grey-green, brightest and yellowish on the forehead; a broad streak from behind the eye over and behind the ear-coverts chestnut; back, scapulars and lesser wing-coverts chestnut; tail brown, with paler olive edges; median coverts black at the base, broadly yellow at the tips; greater coverts black, broadly edged with olive-yellow; quills blackish brown, all but the first primary edged with yellowish, the usual basal patch to the primaries and very broad edges to the inner secondaries; centre of chin and throat black; posterior ear-coverts greenish; anterior ear-coverts, sides of head and neck and whole lower plumage bright yellow, washed with olive on the flanks.

**Measurements.** Total length about 140 mm.; wing 69 to 75 mm.; tail 52 to 54 mm.; tarsus about 17 mm.; culmen 11 to 12 mm.

**Colours of soft parts.** Iris brown; bill black in Summer, yellowish-horny in Winter and always so in the female; legs and feet dark fleshy-brown.

**Female.** Upper plumage light brown, washed with greenish-olive on the crown and rump; tail brown, edged with paler whity-brown; lesser wing-coverts chestnut-brown; median coverts blackish, tipped with yellow-white; greater coverts and quills brown, edged with pale olive-buff; a line from the eye to the nape chestnut-buff; lower plumage dull oily-yellow.

In many birds the feathers of the back and scapulars are streaked with dark brown.

**The Male after the moult** has the chestnut feathers of the back fringed with olive.

**The Young bird** is like the female but pale buff, not yellowish, below.

**Distribution.** Burma from Arakan, the Lower Chindwin to Pegu and East to Siam, Annam and Cochin China. It occurs in the Shan States and Karenni on the East of Burma.

**Nidification.** The Pegu House-Sparrow breeds from March and April to August and possibly in almost every month of the year. It makes a nest quite similar to that of the Tree-Sparrow, either in a hole in a tree or in the thatch or walls of buildings. It lays two to four eggs, generally three, similar to those of the Tree-Sparrow but, on the whole, darker and more profusely covered with markings. The shell is dull and glossless. Forty eggs average 18·4 × 13·9 mm.: maxima **21·0** × 14·2 and 20·0 × **15·0** mm.; minima **17·0** × **12·9** mm.

**Habits.** Very similar to those of the House-Sparrow, though it keeps less exclusively to human habitations.

## Genus **PETRONIA**.

*Petronia* Kaup, Natür. Syst., p. 158 (1829).

Type, *Petronia petronia* Linn.

The genus *Petronia* differs from *Passer* in having proportionately longer wings and a much stronger bill, but it retains the typical Sparrow patch of colour at the base of the primaries.

The sexes are alike, both having a bright patch of yellow on the throat.

## Petronia petronia.

*Fringilla petronia* Linn., Syst. Nat., 12th ed., p. 322 (1766).

Type-locality: North Italy.

The typical form is a smaller, darker bird than that which is found within our limits.

## (1109) Petronia petronia intermedia.

THE EASTERN ROCK-SPARROW.

*Petronia petronia intermedia* Hartert, Nov. Zool., 1901, p. 324 (Gilgit).
*Petronia stulta.* Blanf. & Oates, ii, p. 243.

**Vernacular names.** *Dnok-chi* (Tibet).

**Description.** Forehead and sides of the crown dark brown; supercilium, centre of crown and nape paler buffy-brown; hind neck dull pale brown, grading into the surrounding parts; back

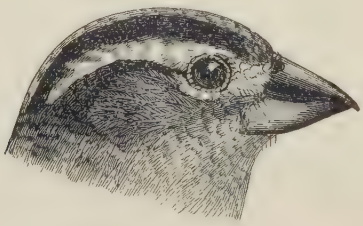


Fig. 43.—Head of *P. p. intermedia.*

and scapulars pale brown, edged buff and broadly black on the inner webs; rump and upper tail-coverts pale brown, with faintly paler edges; central tail-feathers brown, deepening to blackish near the tip, edged ashy and with small white tips on either side; outer feathers with a large patch of white at the tips of the inner webs; wing-coverts and quills dark brown, edged with pale ashy-buff and with the usual primary patch; a yellow patch on the throat; remainder of lower plumage whity-brown, boldly streaked with darker brown on the flanks and obsoletely elsewhere.

**Colours of soft parts.** Iris brown; bill black in the male in the breeding-season, dark horny-brown above, pale yellowish-brown below in Winter; legs and feet yellowish-brown to brown.

**Measurements.** Total length about 165 mm.; wing 99 to 104 mm.; tail 57 to 60 mm.; tarsus 18 to 19 mm.; culmen about 13 to 15 mm.

**Distribution.** Southern Transcaspia and Turkestan to Persia, Afghanistan, Baluchistan, Gilgit, Kashmir and North-West Provinces of India. The few ragged skins with wings of over 100 mm. I have obtained from West and South-West Tibet seem also referable to this race but birds from North-East Tibet have been separated as *Petronia p. tibetana*. These are described as very small birds with a wing of 91 to 94 mm. (Jacobi, Abh. Ber. Mus. Tierkunde, Dresden, xvi, p. 32, 1923).

**Nidification.** Many nests and eggs, presumed to be of this Rock-Sparrow, were collected for me by D. Macdonald and his son. The nests are just masses of straw, roots, wool or any other soft material handy, with a thick lining of feathers and they are placed in holes in rocks and cliffs, often high up, far out of reach. They breed in company from May to July and probably have two or even three broods in the year. The eggs vary from four to six in number and only differ from those of the common House-Sparrow in having a harder more glossy surface. One hundred eggs average 21·7 × 15·5 mm.; maxima **23·4** × 15·8 and 21·1 × **16·9** mm.; minima **17·9** × 15·5 and 22·0 × **14·5** mm.

**Habits.** This Rock-Sparrow is a bird of bare, deserted plains and cliffs, though it may frequent the vicinity of villages in such country where there is also a little cultivation. It is found between 12,000 and 17,000 feet and some birds are apparently resident except in the highest parts during Winter. At the same time a good many birds wander much lower during October to March and it is said to be a Winter visitor only to the North-Western part of the Himalayas.

## Genus **MONTIFRINGILLA.**

*Montifringilla* Brehm, Isis, 1828, p. 1277.

Type, *Montifringilla nivalis*=*Fringilla nivalis* Linn.

The name *Montifringilla* has been discarded by some ornithologists on the grounds that it is a *nomen nudum* but Brehm gives the names of two birds under this genus. These birds he calls *Montifringilla nivalis* Br. and *Montfringilla glacialis* Br. and it is not until 1831 (Handb. Naturg. Vög. Deutschl. p. 270) that he explains that both are referable to *Fringilla nivalis* of Linné. At the same time there can be no doubt as to what bird Brehm referred to under the first given name of *M. nivalis* Br. and it seems therefore unneccessary to substitute for it the name *Chionospina* of Kaup (Skizz. Enterw. Natür. Syst., p. 139, 1829).

The genus *Montifringilla* is closely allied to *Petronia* and *Passer*; like those genera it has an Autumn moult and the young are without much down at first; the wings are comparatively longer than in *Petronia* and the bill longer and more slender. The tail

is quite square at the end, the claws are somewhat lengthened and the sexes are practically alike.

The birds of this genus are characterized by a large amount of white on both wings and tail.

*Key to Species.*

A. Lores ashy or brown, not forming a black line through the eye ..... *M. nivalis*, p. 186.
B. Lores black, forming a mask in front of the eye.
  *a*. Throat white. [p. 188.
    $a^1$. No rufous on sides of neck ..... *M. taczanowskii*,
    $b^1$. Sides of neck rufous ..... *M. ruficollis*, p. 189.
  *b*. Throat black ..... *M. blanfordi*, p. 190.

## Montifringilla nivalis.

THE SNOW-FINCH.

*Fringilla nivalis* Linn., Syst. Nat., 12th ed., p. 321 (1766).

Type-locality: Switzerland.

Differs from our Indian forms in having the head grey instead of brown at all seasons of the year.

*Key to Subspecies.*

A. Head grey ..... *M. n. nivalis.*
B. Head and neck brown.
  *a*. Lesser and median wing-coverts all white ..... *M. n. alpicola*, p. 186.
  *b*. Lesser and median wing-coverts all brown or merely tipped with white. *M. n. adamsi*, p. 187.

## (1110) Montifringilla nivalis alpicola.

THE CAUCASIAN SNOW-FINCH or PALLAS'S SNOW-FINCH.

*Passer alpicola* Pall., Zoogr. Rosso-Asiat., ii, p. 20 (1831) (Caucasia).

**Vernacular names.** None recorded.

**Description.**—*Male.* Whole upper plumage brown, the head generally a trifle more greyish, back with dark centres; upper tail-coverts white on the outside, black in the centre; central tail-feathers black, with narrow fulvous edges, the next pair black at base and tip, white elsewhere, other tail-feathers white, with black tips; lesser and median coverts white; greater coverts brown, tipped white; primaries black, edged with fulvous; outer secondaries white, inner secondaries brown, edged and tipped with white; chin and throat black; remainder of plumage below, under wing-coverts and axillaries white.

In fresh plumage the black throat is almost hidden by the white fringes to the feathers.

**Colours of soft parts.** Iris brown; bill black in the breeding-season, horny-yellow to orange-yellow in Winter; legs, feet and claws black.

**Measurements.** Total length about 175 mm.; wing 114 to 122 mm.; tail 71 to 85 mm.; tarsus about 22 mm.; culmen about 14 to 15 mm.

**Female.** Similar to the male, perhaps a little duller and, apparently, never with so wide an extent of black throat.

**Distribution.** Caucasus, Persia, East Turkestan to Afghanistan. This was almost certainly the form seen by Whitehead in Chitral.

**Nidification.** The Caucasian Snow-Finch breeds during June and July, making a nest of fine and coarse grasses lined with feathers, which it places in a chamber at the end of a rat or other burrow, or else in a heap of stones or a hole in a stone wall. The eggs, three or four in number, are pure white and measure about 24·5 × 16·4 mm.

**Habits.** This Snow-Finch is an inhabitant of rocky, bare hills and desert at altitudes between 10,000 and 14,000 feet but is said to descend to about 3,000 feet in Winter. Whitehead met with it at about 11,000 feet on the Chitral mountains.

## (1111) Montifringilla nivalis adamsi.

THE TIBET SNOW-FINCH.

*Montifringilla adamsi* Adams, P. Z. S., 1858, p. 482 (Ladakh); Blanf. & Oates, ii, p. 246.

**Vernacular names.** *Richi-kya-shok* (Tibet).

**Description.** Above paler and duller than Pallas's Snow-Finch; below darker and more fulvous; the black throat is nearly always concealed by the pale fringes; the lesser and median coverts are brown and the greater are brown tipped with white; the outer secondaries have brown on the outer webs and broad brown bases; the tail-feathers have broader brown tips.

**Colours of soft parts** as in Pallas's Snow-Finch.

**Measurements.** Wing 102 to 113 mm.; tail 61 to 70 mm.; tarsus about 22 mm.; culmen 12 to 14 mm.

**Distribution.** Kashmir from Gilgit to Kuman, Garhwal, Nepal, Sikkim and Tibet.

**Nidification.** Breeds throughout its range in suitable localities between 12,000 and 15,000 feet. The nest is a very roughly made saucer of fine grass stems, coarser grass and, sometimes, a few roots, lined either with fur or feathers, or the two mixed together. Adams found it breeding in the dykes or *mani* walls, raised in memory of some person of note, but a more usual place

is a chamber enlarged in a burrow of a mouse-hare (*Lagomys*) or some other burrowing animal. Occasionally the nest may be built inside a heap of stones or a hole in a stone wall. The eggs number three or four and are pure white with a stout, compact but glossless shell. In shape they are most often broad ovals, the smaller end rather pointed. Twenty eggs averge 23·0 × 16·5 mm.: maxima **25·5** × 16·9 and 24·8 × **17·0** mm.; minima **21·6** × **16·0** mm.

The breeding-season lasts during May, June and July.

**Habits.** Like the other Snow-Finches the Tibetan race is found on the barest, most rocky plateaus and hills It keeps almost entirely to the ground, feeding on seeds and berries and is very active on its feet and very Lark-like in its action. Its call is also said to be like that of a Lark but it has no song. Its flight is strong and straight. Probably this is a strictly resident bird which does not descend below 10,000 feet except under very severe pressure. Stevens noticed it in Sikkim at 11,800 feet on the 18th February when the snow was very deep. In Kashmir it has been observed at about 8,000 feet. All the Snow-Finches are gregarious in winter, sometimes collecting in small flocks of half-a-dozen to a dozen, at other times in companies numbering several hundred birds.

## (1112) **Montifringilla taczanowskii.**

MANDELLI'S SNOW-FINCH.

*Onychospiza taczanowskii* Prjevalsky, Mong. i Strana. Tangut., ii, p. 81 (1876) (River Tetunga, N. Tibet).

**Vernacular names.** *Go-pang* (Tibet).

**Description.** Lores black; forehead white; a broad but ill-defined supercilium pale ashy-white, meeting an indistinct collar of the same on the hind neck; upper plumage sandy or ashy-brown, the back and scapulars streaked with darker brown and fulvous-white on the outer webs of the feathers; rump white; upper tail-coverts pale fulvous-brown; tail blackish brown, the centre feathers paler, all tipped white, increasing in extent outwardly until half the feather is white; wing-coverts brown, broadly tipped with white; quills brown, tipped with white and sub-tipped darker brown; first primary with white outer web, second to fourth with no white on outer web, inner primaries with basal half nearly all white on both webs; cheeks mixed fulvous and brown; ear-coverts pale sandy-brown; remainder of lower plumage ashy-white, purer on chin, throat and centre of abdomen.

**Colours of soft parts.** Iris yellowish-brown to light brown; bill horny-white, tipped darker; legs and feet black.

**Measurements.** Wing 101 to 109 mm.; tail 68 to 73 mm.; tarsus about 22 mm.; culmen about 14 to 15 mm.

**Distribution.** Tibet, Sikkim to Kansu.

The name now used antedates Hume's *mandellii* by a few months and must be adopted.

**Nidification.** Similar to that of the preceding birds. A nest taken by Captain Steen was placed about two feet down the burrow of a mouse-hare and the four eggs it contained measured from 21·6 × 15·0 to 24·1 × 17·1 mm. It was taken on the 19th June near Gyantse at an elevation of some 12,000 feet.

**Habits.** So far as is known, similar to those of the Common Tibetan Snow-Finch.

## (1113) Montifringilla ruficollis.

THE RED-NECKED SNOW-FINCH.

*Montifringilla ruficollis* Blanf., Proc. A. S. B., 1871, p. 227 (Kangra Lama Pass, N. Sikkim); Blanf. & Oates, ii, p. 245.

**Vernacular names.** *Abyé*, *Reb-che-har-po* (Tibet).

**Description.** Lores black, extending through the eye and over the ear-coverts; forehead and supercilium sordid white; anterior crown grey, changing to umber-brown on the hind crown and nape; the umber-brown becomes rufous on the ear-coverts, sides of the neck and lower throat; back and scapulars light umber-brown streaked with darker brown; rump and upper tail-coverts the same unstreaked; tail dark brown, edged rufescent, outer feathers grey at base, with broad white patches between bases and tips; a moustachial streak dark brown; cheeks, chin and throat white; remainder of lower plumage fulvous-white, purer white on the centre of the abdomen; lesser wing-coverts brown, median and greater coverts brown, with broad white tips; primaries brown, the first with a grey outer web, the inner with broad white basal patches; outer secondaries with similar white bases, inner secondaries broadly edged with rufescent.

**Colours of soft parts.** Iris orange-red; bill dark bluish-horny in Winter, black in Summer; legs and feet black (*Walton*).

**Measurements.** Total length about 165 mm.; wing 91 to 101 mm.; tail 55 to 58 mm.; tarsus 19 to 20 mm.; culmen 10 to 11 mm.

**Young birds** are duller and darker above, have no white forehead and want the brown crown and rufous nape and sides of the neck; below, the fulvous tint is duller and there is a faint yellow wash on the abdomen.

**Distribution.** Tibet and Sikkim to Koko Nur and Kansu.

**Nidification.** Similar to that of the other Snow-Finches. Eggs taken by Steen and Macdonald are smaller than those of the other Snow-Finches and only measure about 21·0 × 15·7 mm. The few nests obtained were taken in May and June at an elevation of 12,000 feet.

**Habits.** Similar to those of other Snow-Finches. It is said to

associate with *Lagomys* and also with birds of the genus *Podoces*, both the *Podoces* and the Snow-Finches appropriating the burrows of the mouse-hare for their nests.

## (1114) **Montifringilla blanfordi.**

BLANFORD'S SNOW-FINCH.

*Montifringilla blanfordi* Hume, Str. Feath., iv, p. 147 (1876) (Tibet); Blanf. & Oates, ii, p. 245.

**Vernacular names.** *Abyé-po* (Tibet).

**Description.** Centre of the forehead, lores and a line through the eye, chin and throat black; sides of the forehead, supercilium, cheeks and ear-coverts white; anterior crown ashy-white, changing to bright fulvous tinged with rufescent on crown, nape, hind neck and sides of neck and breast; remainder of upper plumage pale fulvous or rufescent brown; three central pairs of tail-feathers brown, edged with fulvous, remaining pairs dark ashy-grey at base, then white, with fulvous tips and dark brown subterminal patches; lower plumage fulvous-white, almost pure white in old birds.

**Colours of soft parts.** Iris reddish-brown; bill dark bluish-horny or blackish-slaty; legs and feet black (*Walton*).

**Measurements.** Wing 90 to 97 mm.; tail 54 to 56 mm.; tarsus about 19 to 20 mm.; culmen about 10 to 11 mm.

**Young birds** are duller and darker and have no black or rufous markings; below they are suffused with yellow.

**Distribution.** Sikkim and Tibet, apparently not extending to Eastern Tibet.

**Nidification** and **Habits.** Those of the genus. During the Mount Everest Expedition this Snow-Finch was met with in the Autumn and Winter up to 15,200 feet. A nest with young was found about two feet down the burrow of a Pika or "Piping-hare" (*Ochotona curzoniæ*).

## Genus **FRINGILLAUDA.**

*Fringillauda* Hodgs. in Gray's Zool. Misc., p. 84 (1844).

Type, *Fringillauda nemoricola* Hodgs.

This genus is now often "lumped" with *Leucosticte* of Swainson, a genus containing birds of the Rose-Finch type with *very stout bills* and much red on their plumage. I cannot see that they are congeneric.

*Fringillauda* differs from *Montifringilla* in having a more slender bill, a forked tail and practically no white on their plumage. The trivial names dividing these genera into Snow-Finches and Mountain-Finches seem to be excellent.

*Key to Species.*

A. No rose-colour on rump or wing-coverts .. *F. nemoricola*, p. 191.
B. Rump and wing-coverts suffused with rosy. *F. brandti*, p. 193.

## Fringillauda nemoricola.

*Key to Subspecies.*

A. Axillaries yellow ..... *F. n. nemoricola*, p. 191.
B. Axillaries pale ashy ..... *F. n. altaica*, p. 192.

### (1115) Fringillauda nemoricola nemoricola.

HODGSON'S MOUNTAIN-FINCH.

*Fringillauda nemoricola* Hodgs., As. Res., xix, p. 158 (1836) (Nepal); Blanf. & Oates, ii, p. 247.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage and lower wing-coverts dark brown, the feathers edged with rufous; rump dark ashy-grey with obsolete dark margins; upper tail-coverts brown with

Fig. 44.—Head of *F. n. nemoricola*.

broad white tips; tail dark brown with narrow rufescent margins; median wing-coverts dark ashy-grey with white tips; greater coverts brown with white tips; quills dark brown, the primaries narrowly, the inner secondaries broadly, edged with rufous; a very indistinct supercilium dull white and brown; cheeks and ear-coverts rufous-brown with pale shafts; lower plumage dull sordid brown, the sides of the breast and flanks streaked with dark brown, the centre of the abdomen paler and the vent and under tail-coverts broadly edged with white; under wing-coverts greyish white; axillaries bright yellow.

**Colours of soft parts.** Iris brown or reddish-brown; bill fleshy-brown, pale horny-brown, yellowish-brown; legs and feet fleshy-brown.

**Measurements.** Total length about 180 mm.; wing 95 to 101 mm.; tail 60 to 68 mm.; tarsus about 20 mm.; culmen about 10 to 12 mm.

**Young birds** have the whole crown rufous, are more rufous on the upper plumage and the underparts are paler and more rufous.

**Distribution.** Nepal, Sikkim. Garhwal birds are intermediate but are nearest to this form. To the East it extends through South and Central Tibet to Kansu and Mupin.

**Nidification.** Hodgson's Mountain-Finch breeds during July, making a nest of grass and roots, lined with a mixture of fur and feathers, which it places in a hole under a rock or stone, in among the stones of a heap or a wall or, less commonly, in a burrow made by some small animal. The eggs number four or five and are like those of the genus *Montifringilla*, pure white and in shape broad, pointed ovals. Eighteen eggs average 20·6 × 15·2 mm.: maxima **22·0** × 16·0 and 20·3 × **16·1** mm.; minima **19·5** × 15·1 and 20·1 × **14·8** mm.

In Garhwal Whymper took their nests at 14,000 feet upwards and Osmaston at 13,500 feet.

**Habits.** Hodgson's Mountain-Finch has much the same habits as the Snow-Finches but seems to prefer rocky, bare hillsides to plains at high elevations. In Summer it is found between 10,000 and 17,000 feet and descends in Winter to some 6,000 feet, once (*Stevens*) having been recorded as low as 5,200 feet. In January Stevens found that the large flocks in which these birds assemble were, at least sometimes, composed of one sex only. They feed almost entirely on the ground but rest on the tops of high trees and also on telegraph wires.

## (1116) **Fringillauda nemoricola altaica.**

STOLICZKA'S MOUNTAIN-FINCH.

*Fringilla altaica* Eversm., Bull. Soc. Imp. Nat. Mosc., xxi, p. 223 (1848) (Altai).
*Fringillauda sordida.* Blanf. & Oates, ii, p. 248.

**Vernacular names.** None recorded.

**Description.** Differs from Hodgson's Mountain-Finch in having the axillaries ashy and the wing-bases fulvous-rufous instead of white; the edges to the primary-coverts are white in both races.

**Colours of soft parts.** Iris cinnabar-red; bill brown, a spot of brownish-fleshy at base of forehead between nostrils, base of lower mandible brownish-fleshy; legs, feet and claws blackish-brown (*Hume*).

**Measurements.** Total length about 170 mm.; wing 93 to 100 mm.; tail 62 to 66 mm.; tarsus about 19 to 20 mm.; culmen about 10 to 11 mm.

**Distribution.** Afghanistan, North-West Frontier, Kashmir, South to Kuman and North to Gilgit, Yarkand, Tian Schan, Samarkand, Altai and Turkestan; East it extends through Ladakh to Eastern Tibet.

**Nidification.** Stoliczka's Mountain-Finch breeds over the greater part of Kashmir and Kumaon in suitable localities at 9,000 feet and over during July and August. Nests and eggs are not distinguishable from those of Hodgson's Mountain-Finch. The small series of eggs in my collection average 20·7 × 15·3 mm.: maxima **22·0** × 15·6 and 21·0 × **15·7** mm.; minima **19·0** × **15·0** mm.

**Habits.** Similar to those of the preceding bird. In Summer it is found as high as 15,000 feet and occasionally as high as 17,000 feet. In Winter it descends as low as 4,000 feet, many birds, however, remaining between 9,000 and 12,000 feet.

## Fringillauda brandti.

*Key to Subspecies.*

A. Paler in colour and more grey ..... *F. b. brandti*, p. 193.
B. Darker in colour and more brown..... *F. b. hæmatopygia*, p. 194.

## (1117) Fringillauda brandti brandti.

Brandt's Mountain-Finch.

*Leucosticte brandti* Bonaparte, Consp. Av., i, p. 357 (1850) (Siberia or Turkestan).
*Fringillauda brandti.* Blanf. & Oates, ii, p. 248 (part).

**Vernacular names.** None recorded.

**Description.** Lores, forehead, round the eye and anterior crown black, the feathers with sandy-brown edges soon wearing off; hinder crown, neck and upper back dark brown with pale edges; lower back and scapulars ashy-brown, with dark centres and broad pale grey edges; rump dark brown at the bases of the feathers, with broad rosy edges; upper tail-coverts brown with white tips and edges; tail blackish-brown, edged with fulvous-white; lesser wing-coverts pale ashy, narrowly edged with rosy; median and greater coverts pale ashy with dark centres; winglet, primary-coverts and quills dark brown, all edged narrowly with white, with broader white margins to the inner primaries and outer secondaries; chin, throat and breast dark ashy-brown, with darker bases to the feathers and with pale margins; remainder of lower parts pale ashy with indistinctly darker shafts; axillaries pale grey or white; under wing-coverts white.

The pale edges to the feathers abrade very quickly, the head becoming darker, the red on the rump more intense and that on the wings disappearing altogether.

**Colours of soft parts.** Iris brown; bill, legs and feet black, the first paler in the females and young birds and possibly in the male in non-breeding plumage.

**Measurements.** Wing 110 to 119 mm.; tail 74 to 78 mm.; tarsus about 20 to 21 mm.; culmen about 10 to 11 mm.

**Young birds** have no rosy tint on the rump or wing and no black on the head; elsewhere they are much paler and more fulvous in general tint than the adult.

**Distribution.** Tian Schan, Pamirs, Turkestan, Altai South to Yarkand, Kashgar and Gilgit.

**Nidification.** I can find nothing recorded about the nesting of this bird.

**Habits.** Brandt's Mountain-Finch has much the same habits as the Snow-Finches but keeps to even higher elevations in Summer, whilst in Winter, in the Himalayas, it is not often seen below 12,000 feet. It feeds almost entirely on the ground and is an active bird, swift both on its feet and on the wing. In Winter it collects in very large flocks, sometimes numbering many hundreds. Its note, uttered most frequently as it rises from the ground, is described as a loud "chirp" and it is said to have also a Sparrow-like chatter.

## (1118) Fringillauda brandti hæmatopygia.

THE TIBETAN MOUNTAIN-FINCH.

*Montifringilla hæmatopygia* Gould, P. Z. S., 1851, p. 115 (Tibet).
*Fringillauda brandti.* Blanf. & Oates, ii, p. 248 (part).

**Vernacular names.** None recorded.

**Description.** Similar to Brandt's Mountain-Finch but decidedly darker, the upper parts browner, less grey and the lower parts also browner. The dark centres to the feathers of the upper plumage are better defined.

**Colours of soft parts** as in Brandt's Mountain-Finch.

**Measurements.** Wing 110 to 121 mm.

**Distribution.** Kashmir, Ladakh, Sikkim and Tibet.

**Nidification.** The only nest and eggs I have seen of this bird were taken near Gyantse at about 14,000 feet on the 14th July and contained three pure white eggs. The nest was a rough saucer of grass, lined with feathers and was placed deep in among a pile of stones from a fallen boundary wall. The eggs measure 22·2 × 16·2, 22·0 × 16·6 and 21·9 × 16·6 mm.

**Habits.** Similar to those of *F. b. brandti*. This is a bird of very high elevations. During the Everest Expedition it was seen at 17,500 feet and even in Winter does not seem to be found constantly much below 12,000 feet.

## Subfamily EMBERIZINÆ.

The *Emberizinæ* comprise the Buntings, a very large group of birds spread over an enormous portion of the world's surface, of which 16 species have been found within the limits of this work. The great majority of Buntings are migratory, a few locally migratory, breeding in the Himalayas and wintering in the Plains, whilst yet fewer are sedentary.

The Buntings have a conical and sharply-pointed bill, with the culmen straight or nearly so; the edges of the two mandibles, however, unlike those of other *Fringillidæ*, are not in contact throughout their length, but show a gap about midway between the gape and the tips. The upper mandible, moreover, has the palate furnished with a small hard process or knob. With this exception the Buntings conform in structure with the Finches. Like them they have a double plumage, caused in most cases by abrasion in Spring, though a few species have also a partial Spring moult.

*Key to Genera.*

A. No crest ..... EMBERIZA, p. 195.
B. A well-developed crest ..... MELOPHUS, p. 220.

### Genus EMBERIZA.

*Emberiza* Linn., Syst. Nat., 10th ed., p. 176 (1758).

Type, *Emberiza calandra* Linn.

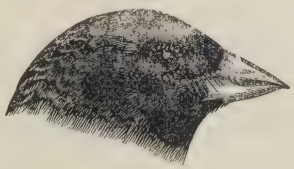


Fig. 45.—Head of *E. aureola*.

*Key to Species.*

A. Tail only slightly shorter than wing.
  *a*. A large white patch on the outermost tail-feathers.
    *a'*. Sides of body streaked or differing in colour from abdomen.
      *a''*. No trace of yellow on lower plumage.
        $a^3$. Chin and throat black.
          $a^4$. Breast white ..... *E. schœniclus*, ♂, p. 197.

| | |
|---|---|
| $b^4$. Breast chestnut ..... | *E. stewarti*, ♂, p. 203. |
| $b^3$. Chin and throat chestnut.... | *E. leucocephala*, ♂, p. 202. |
| $c^3$. Chin and throat white or pale fulvous, with or without streaks. | |
| $c^4$. Ear-coverts chestnut. | |
| $a^5$. A chestnut pectoral band. | *E. fucata*, p. 198. |
| $b^5$. No pectoral band ..... | *E. pusilla*, p. 200. |
| $d^4$. Ear-coverts fulvous or brown. | |
| $c^5$. Rump, tail-coverts and back concolorous. .... | *E. schœniclus*, ♀, p. 197. |
| $d^5$. Rump chestnut contrasting with back. | |
| $a^6$. Wing over 87 mm. .. | *E. leucocephala*, ♀, p. 202. |
| $b^6$. Wing under 86 mm. | *E. stewarti*, ♀, p. 203. |
| $b''$. Lower plumage largely yellow. | |
| $d^3$. Crown chestnut, or brown broadly streaked..... | *E. aureola*, p. 210. |
| $e^3$. Crown green, with obsolete shaft-streaks ..... | *E. spodocephala*, p. 212. |
| $f^3$. Crown yellow, or yellow mixed with green ..... | *E. citrinella*, p. 219. |
| $b'$. Sides of body unstreaked and concolorous with abdomen. | |
| $c''$. Throat and breast bluish-grey. | *E. cia*, p. 204. |
| $d''$. Throat and breast rufous .... | *E. huttoni*, p. 208. |
| $e''$. Throat and breast yellow .... | *E. hortulana*, p. 209. |
| $b$. No distinct patches of white on outermost tail-feathers. | |
| $c'$. Sides of body unstreaked. | |
| $f''$. No streaks whatever on lower plumage. | |
| $g^3$. Crown black ..... | *E. melanocephala*, ♂, p. 213. |
| $h^3$. Crown golden ..... | *E. icterica*, ♂, p. 215. |
| $i^3$. Crown streaked with brown. | |
| $e^4$. Wing over 90 mm. ..... | *E. melanocephala*, ♀, p. 214. |
| $f^4$. Wing under 90 mm. .... | *E. icterica*, ♀, p. 215. |
| $g''$. Throat and fore-neck streaked. | *E. striolata*, p. 217. |
| $d'$. Sides of body streaked..... | *E. rutila*, p. 216. |
| B. Tail decidedly longer than wing .... | *E. calandra*, p. 218. |

## Emberiza schœniclus.

*Fringilla schœniclus* Linn., Syst. Nat., 10th ed., p. 182 (1758).

Type-locality : Sweden.

The form found in India is very much paler than the European bird, which has the margins to the feathers of the upper parts rufous rather than pale fulvous.

## (1119) Emberiza schœniclus pallidior.

THE CENTRAL ASIAN REED-BUNTING.

*Enberiza schœniclus pallidior* Hartert, Vög. Pal., i, p. 197 (1904) (Aiderli in Turkestan).
*Emberiza schœnicius.* Blanf. & Oates, ii, p. 251.

**Vernacular names.** None recorded.

**Description.—Adult male; Summer.** A broad streak from the lower mandible, between ear-coverts and throat white; rest of head, chin, throat and upper breast black; back of neck narrowly greyish-white; feathers of back, scapulars and wing-coverts with broad black centres and wide fulvous margins tinged with rufous next the black; rump and upper tail-coverts paler and more grey with narrow dark centres; central tail-feathers brown, edged externally with pale rufous and internally paler and browner; lateral tail-feathers almost black, with very fine pale rufous edges; the outermost pair mostly white on the outer web and with a patch of white on the inner web, broad at the end and narrowing to a point about three-quarters way down; penultimate pair with a smaller wedge of white; wing-quills blackish, the primaries narrowly, the secondaries broadly, edged with fulvous, rufous next the black; below white, tinged with fulvous and streaked with brown on the flanks and sides of breast.

The amount of white on the tail varies considerably, and in some specimens nearly the whole of the outer web is white.

**Colours of soft parts.** Iris dark brown; bill dark brown, black on the culmen; legs and feet dark brown.

**Measurements.** Total length about 150 mm.; wing 73 to 81 mm.; tail 65 to 70 mm.; tarsus 20 to 21 mm.; culmen 8 to 9 mm.

**After the Autumn moult** the feathers of the head, chin and throat are fringed above with brown, below with white, concealing most of the black until abraded. After the spring moult the feathers of the head are pure black.

**Female.** No black on head and no white collar; the crown is rufous-brown, with dark centres; chin and throat pale buff, with a broad border of black streaks; the lower parts pale fulvous, boldly streaked with dark brown on breast and flanks.

**Young birds** are like the adult female but more boldly streaked; below more buff.

**Distribution.** Breeding in Central South Siberia and wintering in Turkestan to North-East India. Hartert, perhaps following Oates, calls the Indian bird *E. s. schœniclus* and is followed by Witherby but every Indian specimen in the British Museum is, as we should expect, quite certainly *pallidior*.

**Nidification.** I have a clutch of three eggs of a Reed-Bunting taken by Smirnoff in "Uzsimi, Chinese East Russia," on the

12th May which are probably of this race. They are not distinguishable from the eggs of the Common Reed-Bunting and measure about 19·5 × 15·2 mm.

**Habits.** This bird is apparently common in winter in Afghanistan and the North-West Province frontiers. Magrath found it in large flocks in January and March at Bannu "feeding on the shores of Mangiwalla bhil on the succulent shoots of tamarisk scrub," and Whitehead found them both in flocks, in pairs and singly near Kohat.

## Emberiza fucata.

*Key to Subspecies.*

A. Upper plumage much less chestnut, flanks and sides of breast never more than tinged with chestnut ..... *E. f. fucata*, p. 198.
B. Upper parts very chestnut, flanks and sides of breast rich rufous-chestnut ..... *E. f. arcuata*, p. 199.

### (1120) Emberiza fucata fucata.

THE GREY-HEADED BUNTING.

*Emberiza fucata* Pall., Reise Russ. Reich., iii, p. 698 (1776) (Mona and Ingoda); Blanf. & Oates, ii, p. 252 (part).

**Vernacular names.** *Putthur-chirta* (Hind.).

**Description.**—**Male.** Lores dull yellowish; crown to nape ashy-grey, each feather with a broad black central streak; hind neck more grey and with fewer streaks; back and scapulars fulvous, with broad black central streaks bordered with chestnut; rump dull chestnut with obsolete streaks; upper tail-coverts fulvous-rufous with broad dull black centres; tail brown edged with fulvous, the outermost pair largely white on the inner, nearly entirely so on the outer web, penultimate pair with a wedge-shaped patch of white at the tip of the inner web; ear-coverts chestnut; chin and throat fulvous-white, with a line of black streaks on either side, divided from the ear-coverts by another streak of white; upper breast fulvous-white, boldly streaked with black; lower breast generally showing a certain amount of rufous as a band across; remainder of lower parts rufous-white, more strongly tinged with rufous-chestnut on the flanks, where there are also streaks of dark brown.

**Colours of soft parts.** Iris brown or hazel-brown; bill fleshy-brown, darker on the culmen and paler below; legs and feet fleshy-yellow or fleshy-pink.

**Measurements.** Total length about 150 mm.; wing 71 to 76 mm.; tail 62 to 65 mm.; tarsus about 21 to 22 mm.; culmen about 10 to 11 mm.

**After the Autumn moult** the feathers of the crown have fulvous edges which are soon lost by abrasion and the chestnut and black in the lower plumage is also more concealed by the fresh pale edgings.

**Female.** Similar to the male but paler and duller.

**Distribution.** Breeding in South-East Siberia, Manchuria, Corea, Japan and Northern China. In Winter to South China, the Indo-Chinese countries, Burma, Assam and possibly Bengal and Bhutan. The birds from these last two places, as also some winter specimens from Nepal, are exactly like *fucata* below but are rather more richly coloured above; they should, I think, be retained under this name.

**Nidification.** This Bunting breeds in great numbers from Northern China to Japan. La Touche took many nests in Chinkiang which he describes as fragile cups of grass-stems, grass-blades, roots, etc. lined with fine grasses and roots and a little hair. They are placed on the ground and very well concealed. The eggs vary greatly in coloration. The ground-colour is generally a pale yellowish-stone but varies from this to creamy-white or rather dull reddish-pink. Most eggs are profusely stippled or speckled all over with pale reddish-grey, reddish-brown either pale or warm, or purple-brown. Other eggs have these specklings more numerous at the larger end and sparse elsewhere; in others the marks are larger and more blotchy and in a few the markings become scrawls, wavy lines or blotches in the typical Bunting fashion. In shape they are broad, obtuse ovals and the surface is glossless or with a very slight gloss only. One hundred eggs average 20·0 × 16·1 mm.: maxima 22·0 × 16·0 and 21·6 × 17·3 mm.; minima 18·0 × 16·0 and 20·0 × 14·5 mm. The breeding-season is in June, July and August and either four or five eggs are laid.

**Habits.** This Bunting is said to frequent grass lowlands or grass- and bush-covered hills. They are migratory in the full sense of the word, leaving their breeding-haunts in October for the South of China and the Indo-Chinese countries and returning in April and May.

## (1121) Emberiza fucata arcuata.

THE INDIAN GREY-HEADED BUNTING.

*Emberiza arcuata* Sharpe, Cat. B. M., xii, p. 494 (1888) (Himalayas, Simla).
*Emberiza fucata.* Blanf. & Oates, ii, p. 252 (part).

**Vernacular names.** *Putthur-chirta* (Hind.).

**Description.** Differs from the preceding bird in having the head a purer grey; the upper parts much richer and more chestnut, less fulvous in tone and in having the breast and flanks

rich chestnut-rufous; the black markings on the sides of the throat and across the breast form a more or less complete gorget and the chestnut on the lower breast covers all but the extreme centre.

**Colours of soft parts** as in *E. f. fucata.*

**Measurements.** Wing 69 to 71 mm.; tail 65 to 67 mm.; culmen 10 to 11 mm.

**The Nestling** is like the female but very dull above, with a very black head and no chestnut on the lower plumage; the neck, breast and flanks are fulvous, heavily streaked with dull black.

**Distribution.** Kashmir, Kuman to Simla and Garhwal. Breeding birds in Nepal and the Sikkim ranges of hills are undoubtedly of this race but winter visitors of the other race are met with in these places. It again occurs in Yunnan and has also been obtained in the Chin Hills on Mt. Victoria. Birds from these two districts are not so richly chestnut below and should, perhaps, be separated.

**Nidification.** Two nests taken by Rattray in Parachinar and at Murree on the 29th July and 30th May respectively are described as grass cups, mixed with a few roots and lined with finer grasses, well hidden under tufts of grass in grass-land. The eggs, four and three, are not what I should have expected. In shape they are long pointed ovals, the ground-colour is white and they are profusely spotted all over with dark brown and neutral tint secondary markings. All the eggs are rather more profusely spotted at the larger end. They measure between $22{\cdot}9 \times 16{\cdot}0$ and $21{\cdot}3 \times 15{\cdot}7$ mm.

Hume records it as breeding between 6,000 and 8,000 feet in the valleys of the Sutlej and Beas West to Hazara, and Buck took its nest on the 25th June above Kotegarh. Nest and eggs were like those found by Rattray.

**Habits.** This is a Bunting of open grass-covered hills or hills with low scrub-jungle not mixed with trees, though often not far from tree-forest. Jerdon records this Bunting from North and Central India as far South as the Deccan, Mhow, Saugor and Nagpur, whilst Barnes obtained it in Nimach. These records have not been again confirmed, though, from analogy, we should expect to find it migratory like the Chinese forms. It undoubtedly occurs and breeds in Sikkim, as I have received skins thence for identification but it must be very local, as Stevens never met with it.

## (1122) **Emberiza pusilla.**

THE LITTLE BUNTING.

*Emberiza pusilla* Pall., Reise Russ. Reich., iii, p. 397 (1776) (Daurian Alps); Blanf. & Oates, ii, p. 254.

**Vernacular names.** *Dao miji* (Cachari).

EMBERIZA PUSILLA, ¾ life size.
The Little Bunting.

**Description.—Male in Summer.** Centre of crown from forehead to nape rich rufous; sides of the crown black; a pale rufous supercilium; a line from behind the eye encircling the rich rufous ear-coverts; upper plumage and wing-coverts black, broadly edged with fulvous and with rufous next the black; upper tail-coverts and tail dark brown edged with pale fulvous-brown, the outermost or, very occasionally the two outermost pairs, with an oblique streak of white running across the inner or both webs; lores, cheeks, chin and sides of throat rufous; wing-quills dark brown with rufous edges; lower plumage white, boldly streaked with black on the fore-neck, breast and flanks.

**Colours of soft parts.** Iris brown; bill horny-brown, darker above, paler below; legs and feet pale fleshy or yellowish-brown.

**Measurements.** Wing 69 to 74 mm.; tail 55 to 58 mm.; tarsus about 18 to 19 mm.; culmen about 9 to 10 mm.

**Female** and **Male in Winter.** The black and rich rufous of the head duller and obscured by pale edges; chin and sides of the throat white.

**Distribution.** North-East Europe to Manchuria and Mongolia. In Winter South to North-Eastern India, Bengal, Bihar, Assam, Manipur, Burma and South China. It has occurred in the Andamans. In Burma its Southern recorded limit is Karenni.

**Nidification.** The Little Bunting breeds from Northern Russia across Siberia to the East of Amur during June and July. It makes a small and flimsy cup-shaped nest of grass lined with fine grass-stems or hair which is placed on the ground concealed by bushes, grass or moss. The eggs number four to six and vary greatly in colour. The ground-colour is pale grey, pale dull pink, greyish-pink, yellowish or even greenish. The markings sometimes consist of numerous blotches and specks of purple-brown with secondary ones of lavender and neutral tint. Other eggs have the blotches mixed with lines and scrawls of the same colour; some again have nothing but lines entangled over the larger end and these may be of any shade of purple or brown and, rarely, even black. Forty-one eggs average 18·3 × 14·0 mm.: maxima **20·2** × 14·3 and 19·0 × **15·0** mm.; minima **16·4** × 13·3 and 18·0 × **13·2** mm.

**Habits.** The Little Bunting is a Winter visitor to the whole of the Himalayas and the hills of Burma to the South. In India it is very seldom found in the Plains but in Eastern Bengal and Assam it is by no means an uncommon bird in the foot-hills and the plains adjoining them. In its breeding-haunts it keeps much to pine-forests or to forests of mixed pines, birches and alders, being especially partial to the damper portions. It is a Tree-Bunting, spending most of its time quite high up in trees, though it also sometimes feeds on the ground. In Winter it is entirely a seed and berry eater but in Summer its diet consists mainly of insects. It is said to have a sweet song rather like that of the Robin.

## (1123) Emberiza leucocephala.

THE PINE-BUNTING.

*Emberiza leucocephala* Gmelin, Nov. Comm. Acad. Sci. Imp. Petrop., xv, p. 480 (1771) (Astrakan); Blanf. & Oates, ii, p. 254.

**Vernacular names.** None recorded.

**Description.—Male.** Centre of crown to nape white, with a broad blackish band on either side; forehead mixed rufous and black; lores, round the eye and a broad supercilium chestnut; hind neck ashy-rufous turning to rufous, boldly streaked with black on the back and scapulars; rump and upper tail-coverts rufous, nearly always showing some faint traces of white margins; tail dark brown, narrowly edged with pale fulvous; two outermost pairs with large oblique patches of white on the inner webs and narrow white edges to the outer webs; ear-coverts white, bordered with blackish-brown; chin, throat and fore-neck rufous; lesser wing-coverts rufous with black central marks; greater and median coverts black with broad rufous edges; primaries brown edged with whitish, secondaries darker brown edged with rufous; lower plumage white, the bases of the feathers on the breast rufous and, when abraded, practically all of this colour; sides and flanks streaked with rufous; axillaries and under wing-coverts white.

**Colours of soft parts.** Iris dark brown; upper mandible dark horny-brown, the base and gape yellowish; lower mandible pale yellowish-horn or "bluish-horny" (*Hume*); legs and feet fleshy-yellow to pale horny-brown.

**Measurements.** Total length about 170 mm.; wing 88 to 96 mm.; tail 78 to 82 mm.; tarsus about 20 mm.; culmen about 10 to 11 mm.

**The Male after the moult** has the whole head ashy streaked with brown, the white bases hardly showing, the rump and breast are much more white.

**Female.** A ring round the eye white; crown and sides of head ashy-brown with central dark streaks; a broad patch from the bill to behind the ear-coverts whitish, with a narrow black moustachial streak below it; back, wings and tail as in the male but duller; below white, the breast and flanks more or less rufescent and streaked with brown.

**The Young male** resembles the female.

**Distribution.** Breeding in Northern Asia from the Urals to Manchuria and Northern China. Central Asia, possibly breeding, and in Winter to Afghanistan, Baluchistan, Gilgit and Kashmir to Mussoorie, Simla and Garhwal. Whitehead obtained it at 2,000 feet round Kohat.

**Nidification.** In Siberia the Pine-Bunting is said to breed on the outskirts of forests or in bush-covered plains, making the usual Bunting's nest of grass lined with finer grass or hair. The eggs,

which number three to five or, rarely, six, vary considerably. The ground-colour ranges from almost pure white to rather dark dull reddish-stone: in some the tint is violet or greenish. The markings consist of streaks and hair-lines of deep red-brown, purple-brown or blackish and there are nearly always a number of grey and neutral tint underlying blotches. One hundred eggs average 21·5 × 16·1 mm.: maxima **23·3** × 16·7 and 23·0 × **17·3** mm.; minima **19·0** × 16·3 and 19·6 × **14·2** mm. The breeding-season is May and June, second broods being raised in July and August.

**Habits.** In habits this Bunting is said to be very like the Yellow-Hammer, a bird of open country but perching much on trees and with a loud, melodious note though practically no song. It is a Winter visitor to Gilgit, North-West Kashmir down the North-West Frontier and as far East as the Simla States and Garhwal.

## (1124) Emberiza stewarti.

THE WHITE-CAPPED BUNTING.

*Emberiza stewarti* Blyth, J. A. S. B., xiii, p. 215 (1854) (Kotegarh, near Simla); Blanf. & Oates, ii, p. 256.

**Vernacular names.** None recorded.

**Description.—Male in Summer.** Whole crown and nape grey; a broad supercilium from the bill to the nape, lores and feathers round the eye black; whole upper plumage, scapulars and lesser wing-coverts chestnut, the feathers of the mantle with obsolete black central streaks; tail dark brown, the outermost pair white except for an oblique black patch across the base, the penultimate pair with the terminal half obliquely white on the inner web; median and greater coverts dark brown edged with chestnut; quills dark brown, the primaries and outer secondaries narrowly and the inner secondaries broadly edged with rufous; ear-coverts white; chin, throat and sides of neck behind the ear-coverts black; fore neck and breast white; anterior flanks and lower breast rufous; remaining lower plumage fulvous-white, streaked with chestnut on the flanks and under tail-coverts; axillaries and under wing-coverts white with grey bases.

**Colours of soft parts.** Iris dark brown to red-brown; bill horny-brown, paler and more yellowish on the lower mandible; legs and feet fleshy-pink to fleshy-yellow.

**Measurements.** Total length about 160 mm.; wing 80 to 85 mm.; tail 70 to 73 mm.; tarsus about 19 to 20 mm.; culmen 10 to 11 mm.

**The Male after the moult** has the feathers of the upper plumage edged with grey and the grey feathers of the crown obscured by brown edges; the black of the throat is obscured by white edges and the chestnut of the lower plumage by grey edges to the feathers.

**Female.** Upper plumage ashy-brown streaked with black; rump rufous and the scapulars with a little rufous edging; wings and tail as in the male but duller and the latter with rather less white; lower plumage pale dull fulvous, slightly rufous on the breast, streaked with brown on the fore-neck, breast and flanks.

**Young birds** resemble the female but are much more heavily streaked with blackish both above and below.

**Distribution.** Persia, Turkestan, Afghanistan, Baluchistan, Gilgit and Kashmir to Murree, Mussoorie and Garhwal. In winter South to the Plains of the North-West Provinces. It has also been found in Tibet.

**Nidification.** The White-capped Bunting breeds over the whole of its range, building a rather rough, fragile cup of dried grass lined with finer grass-stems and sometimes with a little hair. It is placed on the ground under shelter of a bush, tuft of grass or a root and a very favourite position is on a roadside bank. The number of eggs is generally three, sometimes four, and Wardlaw-Ramsay found five occasionally in Afghanistan. The ground-colour is white or greyish-white, rarely tinged with pink or, even more rarely, bluish. The markings consist of specks, small irregular blotches and a few short broad lines of deep purple-brown or black, with similar underlying marks of pale grey and lilac. A few eggs are more boldly marked and some are very purple in general tone. Sixty eggs average 20·2 × 15·0 mm.: maxima **22·0** × 15·0 and 19·0 × **16·0** mm.; minima **19·3** × 15·1 and 20·8 × **14·0** mm.

In Kashmir and the Himalayas generally the breeding-season is April and May, occasional second broods being raised in June and early July but in Afghanistan, Turkestan, etc. April, May and early June are the breeding months.

**Habits.** In Summer these birds are found between 5,000 and 8,000 feet, less often 1,000 feet higher or lower, whilst in Winter they seem to keep much between the foot-hills and 4,000 feet. A few birds remain at their highest level all the year round and many others wander into the plains of the Punjab, North-West Frontier Provinces, Sind and Rajputana as far East as Etawah. It inhabits grass meadows and hillsides, thin scrub-jungle and open cultivation, feeding almost entirely on the ground and not collecting in large flocks, even in Winter.

## Emberiza cia.

*Emberiza cia* Linn., Syst. Nat., 12th ed., p. 310 (1766).

Type-locality: Western Europe.

In the typical form the tips to the median wing-coverts are always lighter than in any of our Indian forms.

*Key to Subspecies.*

A. Sides of crown black.
  *a*. Upper parts much darker; chestnut, not fulvous ..... *E. c. stracheyi*, p. 205.
  *b*. Upper parts much paler; fulvous rather than chestnut ..... *E. c. par*, p. 206.
B. Sides of crown rufous-chestnut.
  *c*. Very much paler both above and below. *E. c. godlewskii*, p. 207.
  *d* Very much darker and more richly coloured ..... *E. c. yunnanensis*, p. 207.

## (1125) Emberiza cia stracheyi.

THE EASTERN MEADOW-BUNTING.

*Emberiza stracheyi* Moore, P. Z. S., 1855, p. 215 (Kuman); Blanf. & Oates, ii, p. 257.

**Vernacular names.** None recorded.

**Description.—Male in Summer.** Centre of crown to nape bluish-grey; a broad supercilium, cheeks and ear-coverts white; sides of the crown, moustachial streak and line through the eyes meeting behind the ear-coverts, black; back, scapulars, median and greater wing-coverts, rump and upper tail-coverts chestnut, all but the rump with broad black centres; tail blackish brown edged with chestnut; outermost pair white on the outer web and all but the base, obliquely, of the inner web; penultimate pair with similar but less white on the inner web and the next pair generally tipped with white; lesser wing-coverts blackish, edged with bluish-grey; quills dark brown, edged with rufous; chin, throat and upper breast bluish-grey; remainder of lower parts chestnut.

**Colours of soft parts.** Iris brown; bill dark horny-plumbeous above, yellowish-horny below, all darker in the breeding-season; legs and feet fleshy-yellow.

**Measurements.** Total length about 165 mm.; wing 78 to 87 mm.; tail 71 to 79 mm.; tarsus 19 to 20 mm.; culmen 10 to 11 mm.

**In freshly-moulted plumage** the grey of the head is obscured with fulvous fringes and a few black streaks; the black feathers have rufous edges and the white of the head is more bluish grey; the upper parts and rufous lower parts have pale fringes to each feather, making the general tone much paler.

**Female.** Similar to the male but duller.

**Young males** are like the adult but have no definite black or white markings and no grey crown.

**Nestlings** are fulvous-rufous above, streaked with black and with more rufous on the rump and upper tail-coverts; below they are dull fulvous, streaked with blackish on sides of neck, throat, breast and flanks.

**Distribution.** Kashmir, Ladakh and the hills of the North-West Himalayas to Simla States and Garhwal. Birds from Gilgit are intermediate between this form and *E. c. par* but rather closer to the latter.

**Nidification.** The Eastern Meadow-Bunting breeds throughout its range between 5,000 and 9,000 feet and has been recorded as nesting as high as 13,500 feet in Garhwal. It makes a rather flimsy nest of dried grass, lined with fine stems of the same, which is nearly always placed on the ground, under a stone, rock or bush, or in a hollow on a bank. Davidson, however, found one nest nine feet up in a fir-tree and says that they occasionally breed in dense forest. The eggs number three or four, very rarely five, and in appearance are typical Bunting's eggs. The ground-colour is pale greyish or bluish-green, more seldom pinkish or yellowish and the markings consist almost entirely of fine hair-lines, sometimes coarser but hardly ever becoming blotches. In some instances they are scattered irregularly all over the surface but often they form a beautiful and intricately twisted zone about the larger end. One hundred eggs average 21·5 × 15·4 mm.: maxima **23·2** × 15·7 and 21·7 × **16·8** mm.; minima **19·4** × 15·3 and 21·3 × **14·8** mm.

They breed during May and June into July and occasionally, perhaps a second brood, in August.

**Habits.** In Summer this Bunting frequents elevations between 5,000 and 15,000 feet, keeping generally below 10,000 feet, whilst in Winter it descends low and a few individuals penetrate some way into the Plains. It is normally a bird of open grass-lands, bare hillsides or low scrub but, where it is specially common, may be found well inside deep forests. It is a ground-feeding Bunting but rests on trees and bushes, often high up.

## (1126) Emberiza cia par.

THE TRANSCASPIAN MEADOW-BUNTING.

*Emberiza cia par* Hartert, Vög. Pal., i, p. 184 (1910) (Gudan, Transcaspia).
*Emberiza stracheyi* Blanf. & Oates, ii, p. 256 (part).

**Vernacular names.** None recorded.

**Description.** Sex for sex, and at corresponding seasons and ages, this is a much paler bird than *E. c. stracheyi*.

**Colours of soft parts** as in the Eastern Meadow-Bunting.

**Measurements.** Wing 78 to 88 mm.

**Distribution.** Transcaspia, Turkestan, Kurdistan, Baluchistan, Afghanistan and Persia; in Winter Sind and North-West Frontier Provinces.

**Nidification.** Similar to that of the Eastern Meadow-Bunting. Capt. C. H. T. Whitehead and, later, Harington found these

Buntings breeding in large numbers in Chitral and the Khagan Valley between 5,000 and 8,000 feet. The eggs are, indistinguishable from those of the preceding bird and forty average 21·7 × 16·0 mm.: maxima **23·2** × 16·6 and 23·1 × **17·1** mm.: minima **20·3** × 15·9 and 21·7 × **15·1** mm. They breed during June and July.

**Habits** Those of the species.

## (1127) Emberiza cia godlewskii.

THE CHINESE MEADOW-BUNTING.

*Emberiza godlewskii* Tacz., Jour. f. Orn., 1874, p. 330 (E. Siberia).

**Vernacular names.** None recorded.

**Description.** Similar to the Eastern Meadow-Bunting but more richly coloured and distinguishable at all ages by having the coronal bands deep chestnut instead of black. The ear-coverts, superciliary stripe and cheeks are a much darker grey and the tips of the wing-coverts are sometimes paler and a more pure white; the grey crown is striped with black.

**Colours of soft parts** as in the Eastern Meadow-Bunting. Bill "brownish-black" in breeding-season (*Ludlow*).

**Measurements.** Wing 83 to 90 mm.

**Distribution.** Northern China from Chihli to Kansu and Szechuan and South-East Tibet, East Turkestan and Altai, Koku Nur and Lake Baikal. Winter to Sikkim and hills of Northern Assam.

**Nidification.** La Touche found this bird breeding in May and June in the mountains North of Chihli: Sushkin took nests and eggs in Altai in May and birds breeding in Tibet in June and July have been identified as of this race. The nests are similar to those of *E. c. stracheyi* but the eggs have a pale bluish or sea-green ground, whilst the markings consist of coarse and fine lines sometimes scattered over the whole egg but generally in an intricate wreath at the larger end. The primary or superficial markings are of black or deep purple-red, the secondary of lavender or pale reddish. They measure about 21·3 × 15·0 mm. In Tibet the birds breed between 12,000 and 15,000 feet.

**Habits.** Those of the species but in Tibet they are resident birds at great heights. In China they are resident in the Northern Hills at 3,000 to 7,000 feet.

## (1128) Emberiza cia yunnanensis.

THE YUNNAN MEADOW-BUNTING.

*Emberiza yunnanensis* Sharpe, Bull. B.O.C., xiii, p. 12 (1902) (Talifu, Yunnan).

**Vernacular names.** None recorded.

**Description.** Similar to the Chinese Meadow-Bunting but darker and more richly coloured at all seasons.

**Colours of soft parts.** Iris brown; bill above grey to leaden-black, lower mandible paler; feet light brown (*Forrest*).

**Measurements.** Wing 77 to 86 mm.

**Distribution.** Yunnan, Shan States and ? Yangtse Valley.

**Nidification.** A nest with eggs taken by Harington at 10,000 feet in the Shan States, at that time thought by him to be *stracheyi*, must have been those of this race. Nothing was recorded by him about them and I cannot trace them in his collection.

**Habits.** Obtained by Forrest at 9,000 and 10,000 feet in the Lichiang Range in Yunnan.

## (1129) Emberiza huttoni.

THE GREY-NECKED BUNTING.

*Emberiza huttoni* Blyth, J. A. S. B., xviii, p. 811 (1849) (Afghanistan).
*Emberiza buchanani.* Blanf. & Oates, ii, p. 258.

**Vernacular names.** *Jamjohara* (Hind.).

**Description.** Lores and a ring round the eye greyish white; head, neck and upper back rather ashy-grey; back ashy-brown with blackish central streaks; rump and upper tail-coverts the same but less definitely streaked; tail dark brown, narrowly edged with fulvous; outermost pair of feathers white except on shaft and a patch at the tip of the outer web; penultimate pair brown on the outer web and base of the inner web, white on the terminal half of the inner web; scapulars like the back but with a tinge of rufous on the outer webs; lesser wing-coverts ashy-brown; remaining coverts and quills dark brown, broadly edged with rather dull rufous; chin, throat and cheeks dull white, with an indistinct brown streak on either side of the throat; axillaries and under wing-coverts white; remainder of lower plumage pale dull rufous.

**Colours of soft parts.** "Iris dark brown; legs and feet yellowish-brown; bill fleshy-brown" (*Butler*).

**Measurements.** Total length about 160 mm.; wing 82 to 88 mm.; tail 66 to 74 mm.; tarsus 18 to 19 mm.; culmen about 10 to 11 mm.

**In fresh plumage** the feathers of the head have brownish margins and the crown is not so pure a grey; the feathers of the underparts have fulvous edges which more or less obscure the rufous. The amount of white on the tail-feathers varies considerably.

**Female** similar to the male but a little paler and duller and with less white on the tail.

**Distribution.** Altai, Turkestan, Transcaspia, Persia, Afghanistan,

Baluchistan and North-West Kashmir. In Winter to North-West India, South to Chanda and East to Lucknow.

The name *buchanani* by which this Bunting has generally been known cannot be used, as Blyth, J. A. S. B., xvi, p. 780 (1847), himself states that the name was given to an Ortolan Bunting and is therefore a synonym of *E. hortulana*.

**Nidification.** The Grey-necked Bunting breeds in Turkestan and probably also in Afghanistan, Baluchistan and Eastern Persia in May and June, making a very rough cup-shaped nest of dry grass, lined with finer grass and placed in open stony wastes, grass-covered plateaus or cultivation. It is said to be carefully concealed either under a rock or stone, or well under some protecting bush or tuft of grass. The eggs vary greatly in ground-colour, being pale greenish, pale pink or yellow stone-colour, or pale greyish. The marks consist of specks, spots and lines of black or deep purple-red. They measure from 19·0 × 14·9 to 20·3 × 15·9 mm.

**Habits.** This Bunting is a true migrant, passing through the North-Western Himalayas and the Plains of the whole of North-West India to Khandala on the South and to Etawah on the East. Ticehurst found that in Sind males were much more numerous than females and believes the sexes migrate in separate flocks. In their breeding area they frequent in preference the barest deserts and plains but in India are found both in desert and in well-cultivated country among ripe crops of all sorts.

## (1130) Emberiza hortulana.

THE ORTOLAN BUNTING.

*Emberiza hortulana* Linn., Syst. Nat., 10th ed. i, p. 177 (1758) (Sweden); Blanf. & Oates, ii, p. 259.

**Vernacular names.** *Jamjohara* (Hind.).

**Description.** Lores and ring round the eye dull yellowish; upper part of the head and nape dull olive-green indistinctly streaked with blackish; back and scapulars pale rufous with broad black streaks; rump and upper tail-coverts the same with narrow indistinct streaks; tail dark brown edged with fulvous-rufous, the two outer pairs of feathers white on the terminal halves of the inner webs and also on the outer web of the outermost; lesser wing-coverts ashy-brown; other wing-coverts and quills dark brown, broadly edged with pale rufous; an indefinite brown moustachial streak; chin and throat yellow; upper breast dull olive-yellow with faint indications of darker striæ; remainder of lower plumage rufous; axillaries and under wing-coverts yellow-buff.

**Colours of soft parts.** Iris dark brown; bill dark fleshy-yellow, darker on the culmen; legs and feet pale fleshy or fleshy-brown.

**Measurements.** Total length about 160 mm.; wing 81 to

91 mm.; tail 62 to 67 mm.; tarsus 20 to 21 mm.; culmen about 10 mm.

**The male after moulting** has the feathers of the lower part fringed with paler yellowish-fulvous obscuring the rufous.

**The female** is similar to the male but a paler, more yellowish-rufous below; *old* females, however, are quite as yellow on the throat as old males.

**Young birds** have the head like the back; the throat is white, flecked with dark brown and the breast and flanks are boldly streaked with black.

**Distribution.** Practically the whole of Europe; North-West Africa; Northern Asia to West Mongolia; Central Asia to Syria, Persia, Afghanistan. In Winter to Mesopotamia, the Persian Gulf, Gilgit and North-West Kashmir.

**Nidification.** A specimen killed in Gilgit on the 27th May must have been breeding but no nest has yet been found within Indian limits. In Europe it breeds in fields of rye and corn or on hillsides covered with bush-jungle. The nest is a loosely-built cup of grass and roots lined with fine grass or, occasionally, hair. It is placed either actually on the ground in a hollow protected by grass, bush or weeds, or else close to the ground in some bush or dense tuft of grass. It breeds during May and June and apparently has but one brood in the year. The eggs number four to six and are typically pale cream or creamy-grey with rather bold blotches and coarse lines sparsely scattered over the whole surface or, more rarely, concentrated in a ring or cap at the larger end. Rarely the ground-colour may be a comparatively dark grey-green. One hundred eggs average "19·7 × 15·3 mm.: maxima **22·0** × 16·25 and 20·0 × **17·0** mm.; minima **18·0** × **14·5** mm." (*Jourdain*).

**Habits.** The Ortolan Bunting is said to very closely resemble the Yellow-Hammer in its habits. It is a ground-feeding bird, eating insects and seeds, resting both on trees and bushes or on buildings. Its song is said to resemble the words *tink*, *tink*, *tink*, *torji*, the last note prolonged and harsh.

## (1131) Emberiza aureola.

THE YELLOW-BREASTED BUNTING.

*Emberiza aureola* Pallas, Reise Russ. Reich., ii, p. 711 (1773) (Irtysh); Blanf. & Oates, ii, p. 259.

**Vernacular names.** None recorded.

**Description.** Lores, chin, cheeks, ear-coverts and a narrow eyebrow black: whole upper plumage and lesser wing-coverts deep chestnut-maroon, nearly always showing some remains of the pale Winter edging; tail dark brown edged with pale rufous, the outermost pair of feathers with a broad diagonal white patch

across the inner web and the next pair with a small white patch near the tip; median wing-coverts white, greater wing-coverts maroon tipped with white; quills and primary-coverts dark brown edged with rufous; a band between the throat and the breast and the sides of the breast maroon; remainder of lower plumage bright yellow, more or less marked with maroon on the flanks.

**Colours of soft parts.** Iris crimson-brown; upper mandible dark horny-brown, lower fleshy-horny; legs and feet fleshy-brown.

**Measurements.** Total length about 155 mm.; wing 70 to 79 mm.; tail 58 to 62 mm.; tarsus 20 to 21 mm.; culmen 10 to 11 mm.

**After the Autumn moult** the maroon of the upper parts and throat is almost hidden by pale ashy fringes to the feathers; there is a distinct supercilium of yellow-tipped feathers and the ear-coverts are more yellow than blackish.

**Female.** The crown chestnut-brown with darker centres; sides and back of neck olive-brown faintly streaked; back and scapulars olive-chestnut boldly streaked with brown; rump and upper tail-coverts chestnut, the latter with dark centres; tail as in the male; wings as in the male but the lesser coverts nearly all dark brown and the greater coverts edged with pale rufous and no white tips; median coverts with only narrow white tips: ear-coverts olive-yellow surrounded by chestnut-brown; lower plumage yellow, the flanks streaked with blackish.

**Young birds** are like the female but have the crown coloured like the back whilst the breast and lower parts are much more feebly streaked with blackish.

**Distribution.** Breeding in North Russia, through Siberia, Mongolia and Manchuria to Japan and in Winter South to Central, South and Western Europe, extreme North-West India, Nepal, Sikkim, Assam, the whole of Burma, Siam, Malay States, and China.

**Nidification.** The Yellow-breasted Bunting breeds during June and July from Russia to Eastern Siberia, making the usual Bunting's nest of grass but often placing it at some height from the ground in alder- and birch-bushes. The eggs, four to six in number, vary in ground-colour from a clear grey-green to yellowish or greyish stone-colour and are clouded and blotched with dull bluish-green, reddish-brown or, rarely, blackish-brown with secondary markings of lavender and pale grey-green. In a few eggs there are a certain number of streaks but never of any great length. One hundred eggs (52 *Jourdain*) average 20·6 × 15·3 mm.: maxima **22·2** × 15·3 and 21·9 × **16·0** mm.; minima **18·0** × 15·3 and 20·0 × **14·0** mm.

**Habits.** This is a Bunting of meadow-lands, upland plateaus and open spaces, though it also inhabits bush-covered country and

is said to be especially fond of moist places on the edges of rivers, swamps and lakes. It is a very common Winter visitor to Assam and Burma, being then found both in well-wooded and in open country. It has occurred in the Nicobars.

## Emberiza spodocephala.

*Emberiza spodocephala* Pallas,} Reise Russ. Reich., iii, p. 698 (1776).

Type-locality : Daurian Alps.

The typical form differs from that which is found in Assam, Burma etc. in being a much paler yellow below.

## (1132) Emberiza spodocephala melanops.

The Yangtse Black-headed Bunting.

*Emberiza melanops* Blyth, J. A. S. B., xiv, p. 554 (1845) (Tippera).
*Emberiza spodocephala.* Blanf. & Oates, ii, p. 260.

**Vernacular names.** None recorded.

**Description.** Round the eye, lores, chin and face blackish, shading into olive-green on the head, neck and breast; back, scapulars, wing-coverts and innermost secondaries rufous-brown with bold black centres, the rufous richest next the black and more fulvous at the edge; rump and upper tail-coverts paler olive-brown; tail dark brown, the outer feathers white except at the base and external tip; the penultimate feathers with a triangular white patch at the tip of the inner web; primaries and secondaries brown edged with rufous; abdomen, flanks and under tail-coverts bright yellow, the flanks streaked with dark brown; under wing-coverts and axillaries yellowish white.

**Colours of soft parts.** Iris brown; upper mandible dark horny-brown, paler at the base, lower mandible yellow or fleshy-horny; legs and feet fleshy-brown.

**Measurements.** Total length about 165 mm.; wing 74 to 79 mm.; tail 60 to 64 mm.; tarsus about 19 mm.; culmen 9 to 10 mm.

**After the moult** the feathers of the hind neck have narrow rufous-brown edges which very quickly wear off.

**Female** has the head rufous, streaked with brown like the back; lores, supercilium, cheeks and ear-coverts mixed yellow and brown; chin, throat and breast dull greenish-yellow streaked with brown; lower breast, abdomen, lower tail-coverts and flanks brighter yellow, the last streaked with blackish.

**Young birds** have the yellow on the lower parts replaced by buffy-white and the streaks are more numerous than in the female.

**Distribution.** Breeding in the Yangtse Valley and North-Western China; in Winter found in Northern and Central Burma, Siam, Manipur, Assam, E. Bengal, Bhutan and Buxa Duars, Sikkim and Nepal. The birds breeding in the Hupeh District of China seem to be of this subspecies, which probably also breeds in Yunnan, where it is very common in Winter.

According to Sushkin the form breeding West of Szechuan to Altai is typical *spodocephala*. There are some of Hodgson's specimens from Nepal which are very pale and might possibly be this race but they are such bad specimens that it would not be safe to name them.

**Nidification.** Nothing recorded except Styan's note that it breeds in the lower Yangtse basin. I have two eggs, given me by Mr. H. E. Dresser, taken on the 18th May, 1902, in Northern China, which are presumably of this race. They are indistinguishable from the eggs of *E. s. spodocephala*, looking very like Tree-Sparrow eggs and they measure 21·1 × 14·8 and 21·5 × 14·9 mm.

**Habits.** In Summer a shy bird, keeping much to undergrowth and scrub but in Winter, during migration in Southern China, frequenting gardens and orchards and becoming very tame. In Assam it is not uncommon in the plains from October to March but in that province it keeps much to long grass, especially in the vicinity of rivers and swamps.

## (1133) Emberiza melanocephala.

THE BLACK-HEADED BUNTING.

*Emberiza melanocephala* Scop., Annus i, Hist. Nat., p. 142 (1769) (Carniola); Blanf. & Oates, ii, p. 261.

**Vernacular names.** *Gandam* (Hind.); *Booree* (Sind).

**Description.—Male.** Whole upper parts and sides of head black; the hinder crown nearly always retaining some of the golden-brown fringes; nape rufous and golden-yellow; back, scapulars, rump and shorter upper tail-coverts orange-chestnut; the longer tail-coverts brown edged with ashy; tail brown margined with fulvous and with a whitish edge at the end of the inner webs of the outermost pair of feathers: lesser wing-coverts orange-chestnut; other coverts and quills dark brown edged with ashy-white; sides of the breast chestnut; lower plumage, under wing-coverts and axillaries bright deep yellow.

**Colours of soft parts.** Iris dark brown; upper mandible horny-brown, gape, commissure and lower mandible yellowish-horny; legs and feet fleshy-brown.

**Measurements.** Total length about 170 mm.; wing 90 to 99 mm.; tail 67 to 72 mm.; tarsus 23 to 24 mm.; culmen about 13 to 14 mm.

**Male after moult** has the black feathers of the head edged with rufous-brown, the chestnut feathers of wings and back edged with ashy-olive and many of the feathers of the underparts edged with lilac-ashy.

**Female.** Whole upper plumage and lesser wing-coverts pale fulvous-brown, with a faint rufous tinge; the feathers of the head, back, scapulars and coverts centred darker and the feathers of the rump with a golden sheen; below pale clear fulvous, the breast with a tinge of vinous and everywhere traces of yellow, the under tail-coverts being all of this colour.

**Distribution.** Eastern Europe from Italy, Asia Minor, Palestine, Syria, Mesopotamia, Persia, Afghanistan and Baluchistan. Occurs in Winter in India in Sind, North-West Provinces, Punjab, Rajputana, Deccan and the Bombay Presidency on the West to Belgaum and Khandesh.

I agree with Ticehurst that our Indian and Eastern bird is not separable from that found in Europe.

**Nidification.** The Black-headed Bunting breeds during May, June and July, making an untidy nest of grass, mixed with leaves and plant-stems etc. and lined with fine grass or hair. Unlike most Buntings the nest, though sometimes placed on the ground, is generally built on bushes, vines, or small fruit-trees of various kinds. The eggs are not at all like Bunting's eggs in character. The ground-colour varies from almost white to pale bluish-green, rarely tinged with yellow and the markings consist of specks and small spots of dark brown with secondary ones of pale lavender and grey. Occasionally the marks are larger and more blotchy and in these instances are often more numerous in a ring or cap at the larger end. One hundred eggs average 22·4 × 16·1 mm.: maxima **26·0** × 15·1 and 23·8 × **18·2** mm.; minima **19·0** × 14·5 and 19·2 × **14·0** mm.

**Habits.** In Europe during Summer the Black-headed Bunting is a very familiar bird, breeding in cultivated country round about villages; in Palestine also it breeds in orchards and groves but in Asia it breeds in the wilder wastes in scrub-jungle. In India it arrives in the North-West Provinces, Punjab, Sind, etc. in the end of August in vast flocks which often do immense harm to crops. Ticehurst says they assemble in such numbers that when flushed and taking refuge in the nearest Acacia-trees they make the whole tree look yellow. The sexes according to him migrate in separate flocks and the birds moult after their arrival in their Winter quarters.

## (1134) Emberiza icterica.

THE RED-HEADED BUNTING.

*Emberiza icterica* Eversm., Add. Pall. Zoogr. Ross.-Asiat., ii, pl. 10 (1835) (Transcaspia).
*Emberiza luteola*. Blanf. & Oates, ii, p. 262.

**Vernacular names.** *Gandam* (Hind.); *Dalchidi* (Sind); *Pacha jinuwaji* (Tel.).

**Description.—Male.** Extreme point of chin and lores next the bill golden-yellow; whole head, throat and breast golden orange-brown; hind neck and sides of neck golden-yellow; back, scapulars and lesser wing-coverts olive-yellow streaked with brown; whole of lower parts, rump, shorter upper tail-coverts, axillaries and under wing-coverts brilliant deep yellow; longer tail-coverts olive-yellow; tail brown, narrowly edged with olive-yellow; median and greater coverts and quills dark brown edged with pale whitish-brown, sometimes tinged with yellow.

**Colours of soft parts.** Iris dark brown; bill greyish-brown above, darkest on the culmen and greenish-brown below; legs and feet brown (*Butler*).

**Measurements.** Total length about 160 mm.; wing 86 to 89 mm.; tail 69 to 73 mm.; tarsus about 20 to 21 mm.; culmen 12 to 13 mm.

**After the Autumn moult** the orange-brown feathers of the head and breast are fringed with light brown and lilac respectively, almost concealing the basal colour.

**Female.** Whole upper plumage ashy-brown, the mantle and, to a less extent, the head streaked with dark brown; wing-feathers dark brown with broad margins of pale fulvous-brown; lower plumage pale fulvous, washed with yellow in varying degrees and with the under tail-coverts all of this colour.

**Young males** are like the females but with the rump more heavily washed with golden-olive.

**Nestling** brown above, heavily streaked with black except on hind neck and rump; below pale fulvous streaked with brown on the chin, throat and breast; abdomen whitish washed with yellow; under tail-coverts yellow.

**Distribution.** Transcaspia, Afghanistan, Baluchistan, Kashmir, Mesopotamia, Persian Gulf; North to Altai and West Siberia, South to North-West Frontier, Punjab, Sind, Rajputana, Central Provinces, Bombay Presidency to Belgaum, Madras and East to Chota Nagpur.

Stresemann has shown that unfortunately we cannot retain the name *luteola*, as the plate accompanying the description is that of an American genus *Sycalis*.

**Nidification.** Very similar to that of the Black-headed Bunting. The eggs are also similar in character but the ground-colour is

almost white and the general tone is very dingy and dull. Fifty eggs average 20·3 × 15·7 mm.: maxima 22·0 × 17·0 and 21·9 × 17·1 mm.; minima 18·9 × 15·5 and 20·2 × 14·5 mm. Most birds breed in May but eggs have been taken from April to July. It probably breeds in the Kurram Valley, as Wardlaw Ramsay found it breeding in a valley which drains into it.

**Habits.** Similar to those of *Emberiza melanocephala*.

## (1135) Emberiza rutila.

THE CHESTNUT BUNTING

*Emberiza rutila* Pall. Reise Russ. Reich., iii, p. 698 (1776) (Mongolia); Blanf. & Oates, ii, p. 263.

**Vernacular names.** *Lali gandam* (Hind.).

**Description.—Male.** Whole head, upper plumage, wing-coverts, chin, throat and breast deep chestnut; greater coverts brown tipped with chestnut; tail, primary-coverts and quills dark brown edged very narrowly with ashy-ochre, inner secondaries mostly chestnut on the outer web; flanks olive-green streaked with yellow; remainder of lower plumage bright yellow; axillaries and under wing-coverts olive-grey tipped with yellow.

**Colours of soft parts.** Iris hazel to dark brown; bill above dark horny-brown, lower mandible and gape yellowish-horny; legs and feet pale yellowish-brown.

**Measurements.** Total length about 150 mm.; wing 74 to 77 mm.; tail 56 to 59 mm.; tarsus 19 to 20 mm.; culmen 10 to 11 mm.

**After the Autumn moult** the chestnut feathers are edged with ashy-yellow.

**Female.** Above ashy olive-brown boldly streaked with black; rump and upper tail-coverts chestnut; longer upper tail-coverts brown edged with ashy, tail brown edged with ashy-olive; wing-feathers dark brown edged with fulvous; a very indistinct supercilium, cheeks, chin and throat mottled fulvous, white and brown; remainder of lower plumage oily-yellow, the flanks streaked with olive-green and the breast sometimes streaked with brown or with a brownish tinge.

**Young males** are like the females but some show traces of the chestnut on the head and are a brighter yellow below.

**The Nestling** is brown above and yellowish below, boldly streaked everywhere with dark brown.

**Distribution.** Breeding in East Siberia and North China; Wintering in South China, Indo-Chinese countries, Burma as far South as the Tennasserim District, Shan States, Chin Hills, Assam, Manipur, Bhutan Duars and Sikkim.

**Nidification.** According to Taczanowski this Bunting breeds in North China and Eastern Siberia in May and June, making the

usual Bunting's nest on the ground and laying eggs similar in character to those of *E. aureola* but with a yellowish ground-colour instead of greenish. Eggs taken in Dauria measured 17·0 × 14·2 and 18·3 × 13·7 mm.

**Habits.** Similar to those of the Yellow-breasted Bunting. According to Père David it is a favourite cage-bird in China and has a sweet well-sustained song in the breeding-season.

## (1136) Emberiza striolata striolata.

THE STRIOLATED BUNTING.

*Fringilla striolata* Licht., Verz. Doubl. Mus. Berlin, p. 24 (1823) (Nubia).
*Emberiza striolata.* Blanf. & Oates, ii, p. 264.

**Vernacular names.** None recorded.

**Description.** Forehead, crown and nape greyish-white, boldly streaked with black; upper plumage, scapulars and lesser wing-coverts pale rufous-ashy streaked with brown; tail brown edged with ashy-rufous; shoulder of wing and visible portions of greater secondaries rufous; quills brown, edged with rufous, the rufous increasing in width on the inner primaries and secondaries; a supercilium whitish; a line behind the eye and the ear-coverts dark brown divided by and followed by a white streak; chin, throat and upper breast greyish-white streaked with black; lower plumage pale rufous-buff, darker on the flanks, axillaries and under wing-coverts.

**Colours of soft parts.** Iris brown; upper mandible dark horny-brown, lower mandible fleshy or yellowish-horny; legs and feet flesh-colour or yellowish flesh-colour.

**Measurements.** Total length about 125 to 130 mm.; wing 69 to 79 mm.; tail 58 to 61 mm.; tarsus 15 to 16 mm.; culmen 9 to 10 mm.

**Male after moulting** shows a little more pale edging to the feathers of the upper plumage and wings.

**Female** resembles the male but is decidedly paler and duller.

**Distribution.** Nubia, Arabia, Palestine and North-West India, Punjab, North-West Frontier Provinces, Sind etc. East to Etawah and South to Saugor in the Central Provinces.

**Nidification.** Mr. F. E. Kemp took the eggs of this Bunting near Saugor and Col. R. H. Rattray took two more nests in Thull. Both these nests were rough saucers of grass placed on the ground under the shelter of withered bushes in very arid stony hillsides. In one pair of eggs the ground-colour is pinkish, covered everywhere with primary markings of reddish-brown and others, underlying, of pale lavender. In the other pair the ground is white and the superior markings are of dark ochre-brown, whilst the secondary ones are of grey. They measure

20·3 × 15·8, 20·8 × 15·7, 21·3 × 15·3 and 21·0 × 15·5 mm. The first nest was found on the 17th April, the second on the 2nd June. Hume took nests with eggs and young on the 12th and 16th November near Ajmer in similar places and one nest on the 19th in a niche in a stone temple.

**Habits.** This Bunting is an inhabitant of arid plains and stony bare hillsides and wherever such are the common features of the country, whether surrounding or far removed from human habitations, there it will be found a permanent resident. It is a cheerful, lively little bird, typically Bunting-like in all its ways, feeding on the ground on seeds, grain and berries with a change to insects in the breeding-season. Its voice is sweet but rather feeble and its note can hardly be termed a song.

## (1137) Emberiza calandra calandra.

THE CORN-BUNTING.

*Emberiza calandra* Linn., Syst. Nat., 10th ed. i, p. 176 (1758) (Sweden).

**Vernacular names.** None recorded.

**Description.** Above rufous-brown to ashy-brown, varying greatly in tone and in some (*fide Witherby*) *yellowish*-brown; streaked throughout with blackish-brown; the streaks on the rump finer and in some birds almost obsolete; the upper tail-coverts tipped with white; tail dark brown edged with fulvous-ashy; wing-feathers brown edged with more rufous-ashy; a paler patch under and behind the ear-coverts, which are like the crown; lower plumage pale buff, darker on the flanks, albescent on the throat and abdomen, streaked everywhere except on the abdomen with dark brown.

**Colours of soft parts.** Iris dark brown; bill yellowish-horny, darker on the culmen and at the tip; legs and feet fleshy-yellow or pale yellow.

**Measurements.** Total length 180 to 190 mm.; wing 89 to 101 mm.; tail 67 to 76 mm.; bill from skull 12 to 15 mm.; tarsus 24 to 27 mm. (*Witherby*).

**The Young** are paler above and more profusely streaked except on the centre of the crown; the chin and throat are more buff and less profusely streaked and the abdomen is whiter and almost unstreaked.

**Distribution.** Practically all Europe, North Africa and Western Asia, occasionally coming as far South as Sind in Winter.

**Nidification.** In the more Northern areas the Corn-Bunting breeds during June, July and early August and in the Southern countries a month to six weeks earlier. The nest is a large, rather loosely-built cup of grass, mixed to some extent with roots and lined with finer grass or, more rarely, hair. It is generally placed on the ground in growing crops, sometimes in grass and

occasionally in furze or other bushes a few inches above the ground. The eggs number four or five, exceptionally six. They vary considerably; the ground-colour ranges from pure white to greyish, dull pink or rufescent; the markings, which consist of blotches, coarse lines and streaks, are of blackish-blue, dull purple or reddish-brown, with secondary blotches and smudges of dull grey and lavender. One hundred eggs average 24·5 × 17·6 mm.: maxima **28·0 × 19·0** mm.; minima **21·0 × 17·0** and **22 × 16·0** mm.

**Habits.** The Corn-Bunting is a bird of open country or fields of wheat and other grain and it seems very partial to downs and cultivation close to the sea. It has no song but the male keeps up a continuous dreary call when the hen is sitting. It is a resident bird over the greater part of its range but some of the Asiatic birds move South in winter and have been recorded from Jhang in the Punjab (*Whistler* and *Ticehurst*) and from Doulatpur in Sind (*Murry*).

## Emberiza citrinella.

*Emberiza citrinella* Linn., Syst. Nat., 10th ed. i, p. 177 (1758).

Type-locality: Sweden.

The typical form differs from the Eastern bird in being darker on the upper parts.

## (1138) Emberiza citrinella erythrogenys.

The Eastern Yellow-Hammer.

*Emberiza erythrogenys* Brehm, Vogelfang, p. 414 (1855) (Sarepta).

**Vernacular names.** None recorded.

**Description.** Head yellow, marked in varying degree on the crown with dark green feathers with blackish shafts; in most birds the dark green shows principally on the sides of the crown and nape, leaving supercilia and a coronal streak purer yellow; sides and back of neck greenish brown obsoletely streaked; mantle rufescent ashy-brown, boldly streaked with black; rump chestnut with no streaks but fringed with pale ashy when freshly moulted; tail dark brown, the feathers edged with pale ashy, the outermost pair mostly white on the terminal half of the inner web and the next pair with a smaller white patch; lesser wing-coverts brown tipped with chestnut; median coverts brown tipped with chestnut and yellow; greater coverts and innermost secondaries blackish edged with rufous-chestnut; primary-coverts and primaries blackish edged with yellow, the edges broader on the inner primaries and outer secondaries; below yellow, the throat often with black specks except on the oldest birds; the breast with a broad band of mingled olive-green and chestnut and

the flanks more olive-green, profusely streaked with dark brown and sometimes with rufous patches.

**Colours of soft parts.** Iris dark brown; upper mandible dark bluish-horny, lower mandible yellowish-horny; legs and feet flesh-colour or pale fleshy-brown.

**Measurements.** Total length about 160 mm.; wing 85 to 89 mm.; tail 73 to 75 mm.; tarsus about 20 to 21 mm.; culmen about 11 to 12 mm.

**Female.** Similar to the male but with less yellow and more green on the head; breast and flanks more brown and less chestnut than in the male and the underparts often paler yellow.

**Young birds** are mottled brown and yellow on head; upper plumage like the adult but with broad chestnut edges to the feathers; lower parts yellow, much streaked throughout with brown.

**Distribution.** Russia and West Siberia; West to East Prussia, East to Altai and Yenesei, Turkestan, Persia, Central Asia and Asia Minor. How far West this bird should be considered to be of this race is doubtful but specimens obtained by Meiklejohn East of Reval and Esthonia appear to be referable to it.

**Nidification.** Quite indistinguisable from the Common Yellow-Hammer. The nest is a cup made of grass, roots, weed-stems, moss and leaves with a lining of fine grass and sometimes, as with all Buntings, a little hair. It may be placed in a bank, among the weeds etc. at the foot of a hedge, or occasionally in a bush or clump of furze or broom. The eggs, three to five in number, vary in ground-colour from the palest pink, cream, yellowish- or bluish-grey, almost white, to rather warm tints of the same. The marks consist principally of fine lines of reddish-brown or dark blackish-brown irregularly distributed over the whole surface but usually more numerous at the larger end; the secondary marks consist of more smudgy lines and washes of pale lavender, lavender-grey or pinkish-grey. Thirty eggs average 20·7 × 16·1 mm.: maxima 21·6 × 16·6 and 21·1 × 17·1 mm.; minima 19·9 × 15·7 and 20·7 × 15·0 mm.

**Habits** differ in no way from those of the Common Yellow-Hammer.

## Genus **MELOPHUS.**

*Melophus* Swainson, Class. Birds, ii, p. 290 (1837).

Type, *Melophus melanicterus* Gmelin.

The genus *Melophus*, which contains but one Indian species, differs from all other Buntings in having a long crest. The tail is nearly square at the tip. The sexes are differently coloured but both male and female have a considerable amount of red on the wings and tail.

This bird is founded by Gmelin in part on Müller's *Loxia fimbriata* (Nat. Hist. Suppl. p. 153, 1776), which in turn is based on Buffon's Moineau de Macao (Planches Enl. No. 224). In this plate three birds are represented and No. 1 bears some superficial resemblance to *Melophus* but it has no crest and a quite wrongly-coloured tail. It is, moreover, figured with two black American Tanagers, to which it bears an even closer resemblance except for the chestnut wings. It is extremely doubtful if this bird was ever intended to represent a Crested Bunting and, this being so, Müller's name of *fimbriata* cannot be accepted.

## (1139) Melophus melanicterus.

THE CRESTED BUNTING.

*Fringilla melanictera* Gmelin, Syst. Nat. i, p. 910 (1788) (Macao).
*Melophus melanicterus.* Blanf. & Oates, ii, p. 265.

**Vernacular names.** *Pathar-chirta* (Hind.).

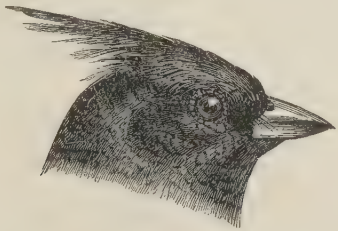


Fig. 46.—Head of *M. melanicterus.*

**Description.—Male.** Head, neck, back, rump, tips of upper tail-coverts, lesser wing-coverts, whole lower plumage except thighs and under tail-coverts black; tips of wing- and tail-feathers and inner webs of inner secondaries black, glossed on the head, back, breast and wings with deep blue-green; thighs and under tail-coverts mixed with brown and chestnut; remainder of plumage chestnut.

**Colours of soft parts.** Iris dark brown; bill dusky, blackish above and fleshy at the base of the lower mandible; feet fleshy-brown, the toes darker, claws blackish, paler at the tips (*Scully*).

**Measurements.** Total length about 160 mm.; wing 79 to 88 mm.; tail 67 to 71 mm.; tarsus 20 to 21 mm.; culmen about 11 to 12 mm.

**The male after the Autumn moult** has all the feathers of the black parts edged with olive-brown and traces of these fringes generally show to some extent even in the most abraded plumage.

**Female.** Whole upper plumage and short crest dark brown, each feather edged with ashy-olive; tail dark brown edged with cinnamon and the outer feathers except at the tip and base all dull cinnamon; wing-feathers brown edged with cinnamon and the quills cinnamon on the inner webs, tipped with brown only; ear-coverts and cheeks brown mottled with olive; below dull buff, the flanks and sides of the neck darker and more olive and these parts with the throat and upper breast more or less mottled and streaked with dark brown.

**Young birds** are like the female but the male partly assumes the colour of the adult at the first Autumn moult.

**Distribution.** The Crested Bunting extends throughout the lower Himalayas from Kashmir to E. Assam; the hilly country of Western India and Rajputana to Lohardaga and Bihar. In Burma it extends throughout the hills from Manipur, Chin and Kachin Hills to Tenasserim.

**Nidification.** This Bunting breeds in the hills from a few hundred feet high to some 6,000 feet, possibly reaching its highest breeding-range in the Naga Hills, where it certainly breeds up to 8,000 feet. The only place where it breeds actually in the Plains is, I believe, Bihar. It breeds during April to August, making a cup-shaped nest of grass, often mixed with other materials such as roots, moss, plant-stems etc., lined with fine grass, fine roots or hair. Some nests are quite shallow, ill put together and fragile, whilst others, the majority perhaps, are strong, compact little cups. They are placed on the ground under shelter of a stone, clod or bush, or are built in holes in walls, banks and even buildings. The eggs number three or four and in ground-colour vary from pure white to creamy or yellowish stone-colour. The markings consist of specks, spots and blotches of dark brown or reddish-brown, numerous everywhere but frequently more so at the larger end, where they may form a ring or cap. The underlying marks are of lavender or pale grey. Fifty eggs average 20·1 × 15·6 mm.: maxima **21·3** × 15·2 and 21·1 × **16·7** mm.; minima **17·9** × 13·9 and 18·1 × **13·0** mm.

**Habits.** The Crested Bunting is a bird of open dry country, both cultivated and more or less desert, keeping almost entirely to hills but resident wherever found, throughout the year. It is by no means a shy bird, often frequenting towns, villages and forts where the surrounding country is suitable. It seems to have no song but its notes are sweet and full and it is a cheerful, lively little bird in its ways.

# Family BOMBYCILLIDÆ.

If we reject the name *Ampelis* for the Waxwing and accept, as we must do, the name *Bombycilla*, the name of the family must take its derivation from that of the only genus it contains.

This curious genus is remarkable for its full, long crest and for the wax-like prolongation of the shafts of the secondaries, from which feature the Waxwings take their name. The wing is long and pointed and has ten primaries, of which the first is minute; the tail of twelve feathers is short and square; the bill is short and stout, slightly curved and with a simple notch; the tarsi are very short.

A very careful examination of the material in the British Museum confirms Dr. Hartert's doubts as to there being any grounds for the separation of this species into subspecies, though it is possible, if not probable, that there is a breeding bird (Poliakow's *centralasiæ*) in the Altai Mts. For the present I retain all these birds under the binomial.

## Genus **BOMBYCILLA.**

*Bombycilla* Vieill., Ois. Am., p. 88 (1808).

Type, *Bombycilla cedrorum* Vieill.

### (1140) **Bombycilla garrula.**

THE WAXWING.

*Lanius garrulus* Linn., Syst. Nat., 10th ed. i, p. 95 (1758) (Sweden).

**Vernacular names.** None recorded.

**Description.—Adult male.** Lores and a narrow pointed line, chin and throat black; line from under the gape white, changing to rufous on the cheeks; forehead and anterior crown chestnut, changing to vinous grey-brown on the rest of the head, neck and nape, darker and browner on the back and scapulars and changing to ashy-grey on the rump and upper tail-coverts; tail grey at the base with black subapical patch and brilliant yellow tips; wing-coverts and innermost two or three secondaries like the back; greater secondaries black tipped with white; primaries black, the second with a small white line at the tip of the outer web, increasing on each succeeding feather round the tip of both webs and becoming yellow on the inner primaries and much broader; secondaries, except the inner two or three, dark grey

with white patches at the end of the outer webs and with the tips of the shafts prolonged into brilliant red flat drops; breast pinkish-brown becoming more grey on the posterior flanks and abdomen; under tail-coverts deep chestnut.

**Colours of soft parts.** Iris dark brown; bill black, fleshy at the base; legs and feet black.

**Measurements.** Total length about 180 to 190 mm.; wing 112 to 120 mm.; tail 59 to 67 mm.; tarsus about 20 to 22 mm.; culmen about 10 to 11·5 mm.

**Female** similar to male but the yellow on the wing almost white; chin and throat sometimes less intensely black and, *fide* Witherby, the mantle more inclined to be greyish.

**Young birds** have the upper parts brown; the throat and lower parts pale dull brown with buff ill-defined striations on abdomen and flanks; under tail-coverts pale chestnut-brown; wings and tail as in the adult female; bill yellowish.

**Distribution.** Breeding in the Arctic regions of Eastern and Western hemispheres; in Winter South to Central Europe and Asia; in the extreme East farther South to South China. Magrath obtained a single fine male of the species in the cantonments, Bannu, N.W. Frontier and he and Whitehead also obtained it at Kohat in 1906 and 1907.

**Nidification.** The Waxwing breeds generally in swampy forests of conifers, occasionally in stunted birches. The foundation of the nest is of spruce-twigs, the remaining materials grass and lichens, lined with fine grass, down, feathers or reindeer hair. The eggs number four to six and in colour vary from ashy-grey to ashy-blue. The primary markings consist of black spots and specks, rather bold in character, distributed fairly numerously over the whole surface but more numerous towards the larger end; the secondary spots are of dark grey and lavender. The average size of one hundred eggs is 24·03 × 17·29 mm.: maxima **28·3** × 18·0 and 24·8 × **18·8** mm.; minima **21·1** × 16·3 and 25·0 × **15·7** mm.

The breeding-season is from the end of May to early July.

**Habits.** It is said to be a very silent bird, occasionally uttering a single plaintive note. It is very tame and confiding, especially in Winter, when it frequents orchards, gardens and the outskirts of towns and villages. It feeds on insects in Summer and on berries, especially juniper and mountain ash, in Winter. At this latter season it associates in flocks and its migrations extend far both South and West, but are very irregular.

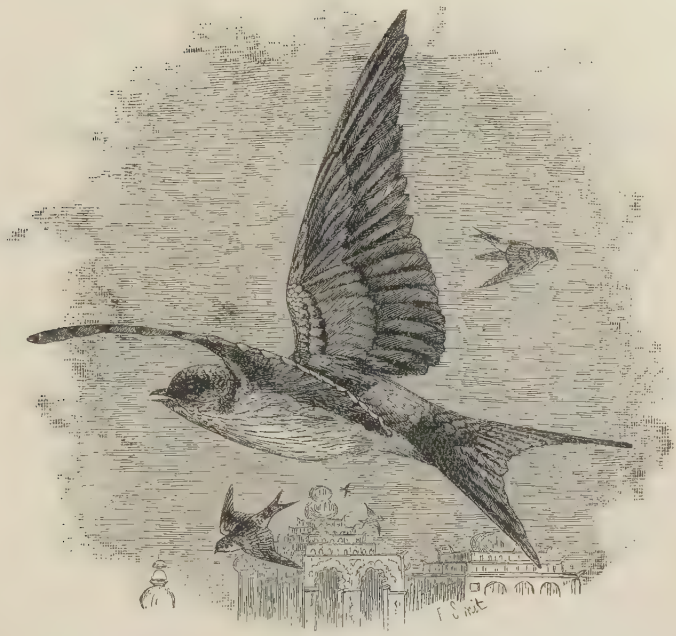


Fig. 47.—*Hirundo d. erythropygia.*

## Family HIRUNDINIDÆ.

The edges of both mandibles smooth, with a single notch, or the indication of one, in the upper; the hinder part of the tarsus longitudinally bilaminated, the laminæ entire and smooth; front of tarsus smooth; wing with nine primaries, the first and second nearly equal; the longest secondaries reaching to about the middle of the wing; bill flat, broad and triangular when viewed from above; gape very wide; rectrices twelve; sexes alike; a moult in the Spring only; young similar to the adult but with the feathers pale-edged on the upper plumage; rictal bristles weak.

The Swallows resemble each other very closely in structure, differing only in the shape of the tail. As this, however, is different in almost every species, it cannot be considered a generic character. They can, however, be divided into four fairly well-defined genera by differences such as the feathering of the tarsus and by their colour and colour-pattern.

*Key to Genera.*

A. Tarsus and toes feathered ..... DELICHON, p. 226.
B. Tarsus and toes bare, or with a tuft of feathers only.
  *a*. Upper plumage unglossed brown.
    *a'*. Tail-feathers without white spots .. RIPARIA, p. 231.
    *b'*. Tail-feathers spotted with white .... PTYONOPROGNE, p. 236.
  *b*. Upper plumage mostly glossy blue-black HIRUNDO, p. 239.

## Genus **DELICHON**.

*Delichon* Horsf. & Moore, Cat. Birds Mus. E. I. Co., i, p. 384 (1854).

Type, *Delichon nepalensis* Hodgs.

The genus *Delichon* contains the Martins, birds distinguished from all others in the same family by their wholly feathered tarsi and toes. The rump is conspicuously white; the tail varies from deeply forked to almost square.

*Key to Species.*

Under tail-coverts white; tail deeply forked ..... *D. urbica*, p. 226.
Under tail-coverts black; tail square .... *D. nepalensis*, p. 230.

## Delichon urbica.

*Key to Subspecies.*

A. The longer upper tail-coverts black.
  *a*. Lower plumage pure white ..... *D. u. urbica*, p. 226.
  *b*. Lower plumage smoky or greyish-white ..... *D. u. cashmeriensis*, p. 228.
B. The longer upper tail-coverts white .. *D. u. whiteleyi*, p. 229.

### (1141) Delichon urbica urbica.

THE HOUSE-MARTIN.

*Hirundo urbica* Linn., Syst. Nat., 10th ed. i, p. 192 (1758) (Sweden).
*Chelidon urbica*. Blanf. & Oates, ii, p. 269.

**Vernacular names.** None recorded.

**Description.** Upper part of the head, back and scapulars black, glossed with deep blue; longest upper tail-coverts the same; wings and tail dull, rather brownish black, the lesser wing-coverts edged with blue gloss; rump, shorter upper and under tail-coverts white with some very faint brown shaft-lines; lower plumage white. A few of the white bases to the feathers of the hind neck often show as an indistinct collar.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet pale fleshy.

**Measurements.** Total length about 150 mm.; wing 104 to 112 mm.; tail 59 to 63 mm.; tarsus about 10 to 11 mm.; culmen about 6 mm.

**Young birds** have the black portions of the plumage replaced by dull smoky-brown and the lower surface washed with fulvous-brown or smoky-brown; the inner secondaries have rather broad white tips.

**Distribution.** Europe, Eastern Asia to Turkestan, Persia, Afghanistan, Gilgit, Northern Kashmir to Leh and Ladakh. In Winter South to Africa and North-West India, wandering occasionally as far South as Coimbatore, Mysore (27th April) and the Central Provinces.

Figs. 48, 49, 50.—Foot, head, and bill of *D. u. urbica*.

**Nidification.** The House-Martin breeds in Northern Europe in June and in the more Southern countries in the end of May, whilst in the Himalayas eggs may be found in June and July. It builds a nest made of tiny pellets of mud, stuck together when wet and well lined with feathers. In shape it is like a semi-cup, the edges taken up to the eaves of the building, which form the roof, leaving a small entrance at the top. In Europe it is practically always placed under the eaves of houses, but in Western Asia it more often than not breeds on cliffs and Osmaston found it breeding on cliffs in Ladakh between 12,000 and 14,200 feet under overhanging rocks. The only Indian eggs in my collection were taken at Taukse, Ladakh, by Col. Ward's collector, the parents of these eggs being typical *D. u. urbica*. The eggs are pure white and number four or five, rarely six. Fifty-four average (*Witherby*) 19·4 × 13·2 mm.

It has also been reported as breeding in Mysore in the Shemogat District. In this case a colony is said to have built their nests under a large overhangiug rock in the bed of the river Tunga and, from the appearance of the place, had apparently bred there for many years.

**Habits.** The European House-Martin is a common Winter visitor to the North-West of India, wandering occasionally as far South as Mysore and, more often, to the Central Provinces. It

is as familiar and tame a bird in India as elsewhere, hawking for its insect food utterly regardless of lookers on. It arrives in its winter quarters in large but very scattered flocks in the end of October, leaving again in late March and early April.

## (1142) Delichon urbica cashmeriensis.

THE KASHMIR HOUSE-MARTIN.

*Delichon cashmeriensis* Gould, P. Z. S., 1858, p. 356 (Kashmir).
*Chelidon kashmiriensis.* Blanf. & Oates, ii, p. 269.

**Vernacular names.** None recorded.

**Description.** Differs from the European House-Martin in having the shaft-lines on rump and tail-coverts more definite and in having the lower parts suffused with smoky- or grey-brown.

**Colours of soft parts** as in the European race.

**Measurements.** Total length about 135 mm.; wing 99 to 104 mm. (one 107 mm.); tail 42 to 46 mm.; tarsus 9 to 10 mm.; culmen about 6 mm.

**Distribution.** The Himalayas from South-East Afghanistan to Sikkim. To the North it extends to the South of Gilgit, where it meets the previous race. In Winter it has been found as far South as Bilaspur in the Central Provinces and also in Coimbatore. It is extremely difficult to define the breeding-ranges of this and the last form. *D. u. urbica* has been found breeding down to 5,000 feet in Gilgit and *D. u. cashmeriensis* up to 12,000 feet in the same country. In Ladakh both forms have been found breeding and there are also specimens of both forms in the British Museum collection obtained from Leh in the Summer months. The division seems to be one of North and South, not much affected by altitude.

**Nidification.** Whitehead, Pitman and others found the Kashmir House-Martin breeding during May and June on the North-West Frontier but throughout Kashmir, Kuman, Garhwal etc. it appears to breed from the middle of June to the end of July. It builds both on cliffs and buildings, in the former case often in colonies of considerable size, sometimes numbering three or four hundred pairs. The nest is just like that of the European House-Martin; when on houses, which is unusual, the eaves of the buildings form the roof of the nest, but when in colonies on cliffs an overhanging rock serves this purpose to the upper nests, whilst these in their turn form the roofs of those below them. Four or five eggs are laid, sometimes three only, which are not distinguishable from those of *D. u. urbica* though rather smaller. Eighty eggs average 17·9×12·7 mm.: maxima **19·6**×13·0 and 19·2×**13·5** mm.; minima **16·0**×13·1 and 17·0×**12·2** mm.

**Habits.** This little Martin is a resident wherever found from 5,000 feet to 15,000 feet, though it leaves the higher ranges for the lower in the coldest months. Except that it does not haunt the towns and villages, as does its European cousin, but is found often in the most desolate, uninhabited areas, its habits call for no remark. It very rarely straggles into the plains of India but was once obtained by Blanford in the Central Provinces at Bilaspur.

## (1143) Delichon urbica whiteleyi.

THE SIBERIAN HOUSE-MARTIN.

*Chelidon whiteleyi* Swinh., P. Z. S., 1862, p. 320 (Pekin).
*Chelidon lagopus.* Blanf. & Oates, ii, p. 270.

**Vernacular names.** None recorded.

**Description.** Differs from the European House-Martin in having the longest tail-coverts pure white; under wing-coverts and axillaries dark brown.

**Colours of soft parts.** As in the other races.

**Measurements.** Wing 104 to 111 mm.; tail 50 to 53 mm.; tarsus about 11 to 12 mm.; culmen about 6 mm.

**Distribution.** Siberia from the Yenesei District to Manchuria. In Winter to South China and Indo-Burmese countries, once in Burma and once in Cachar. Oates thinks he saw large flocks of this Martin in Pegu and I frequently saw small parties of a Martin in Assam which may have been of this race.

**Nidification.** Breeds from May to July, but Smirnoff took a few eggs as late as August in the Yenesei district. The nests are generally built on houses, temples, etc. A fine series of eggs sent me by Smirnoff and others in the Dresser collection cannot be distinguished from those of the other races. Thirty-five eggs average 19·4 × 13·3 mm.: maxima 22·5 × 13·0 and 18·4 × 13·9 mm.; minima 17·1 × 13·0 mm.

**Habits.** This is a truly migratory Martin and probably occurs much more frequently than is at present known. The flocks met with in Assam arrived about the last week in October but, after haunting some places for a few days, passed on and were not seen again until the following March or April on their return journey North. They roosted at night in the thatch of my bungalow for two or three nights in succession and their notes, flight and actions were all just like those of the home bird.

## (1144) Delichon nepalensis.

HODGSON'S HOUSE-MARTIN.

*Delichon nepalensis* Hodgs. & Moore, P. Z. S., 1854, p. 104, pl. lxiii (Nepal).
*Chelidon nepalensis.* Blanf. & Oates, ii, p. 271.

**Vernacular names.** *Béré-Dao* (Cachari); *Iurui-bi* (Naga).

**Description.** Upper part and sides of head, neck, back, scapulars, wing-coverts, longest tail-coverts and tail black, glossed with deep blue; feathers of hind neck white at the base and showing as a broken collar; rump white; shorter upper tail coverts white with black tips; wing-quills black, edged glossy; lower cheeks and ear-coverts unglossed black; chin and throat unglossed black, the latter generally mottled with white; under tail-coverts black glossed with blue; remaining lower plumage white; axillaries and under wing-coverts black.

**Colours of soft parts.** Iris dark brown; bill horny-brown to blackish-brown; legs and feet fleshy-white.

**Measurements.** Total length about 120 mm.; wing 96 to 98 mm.; tail 38 to 41 mm.; tarsus about 10 to 11 mm.; culmen 6 mm.

**Young birds** have no gloss on the black, which is browner and duller and the throat seems more mottled with white; the lower plumage, especially the throat, is suffused with grey.

**Distribution.** Himalayas from Naini Tal to Eastern Assam and South to Cachar and Manipur.

**Nidification.** In 1893 I found this little Martin breeding in a huge colony on most inaccessible rocks of a cliff over the Boila stream at about 5,000 feet, a few birds only building under the rafters of a house built on the edge of the cliff. Whymper found an even larger colony, numbering about 3,000 pairs, breeding on a cliff near Naini Tal in April. Most of these nests were out of reach or were rendered unapproachable by numerous bees' nests but a few of the outlying ones were reached and the eggs were taken, in each case four in number and nearly all too hard-set to be blowable. They are, of course, pure white, rather fragile eggs and vary in length between **17·3**×13·1 and **19·1**×12·0 mm. and in breadth between 19·0×**11·3** and 18·3×**13·4** mm.

The nests are exactly like those of the Common House-Martin but in many cases those seen both by Whymper and myself had practically no overhead protection and in these cases the mud sides were continued over the entrance and back to the cliff as a roof. Many nests were built a little apart from others but many also were built in small clusters of half-a-dozen to some twenty or thirty nests. I took eggs from the North Cachar Colony in April, May and again in July in different years and the birds probably have two broods.

**Habits.** This Martin is a non-migratory bird. Whymper found them present in their breeding haunts in Naini Tal during December and whenever I visited the breeding colony in N. Cachar the birds were always to be seen hawking around, Summer and Winter alike. They were absolutely tame, flitting backwards and forwards within a few feet of us as we watched them, whilst those which nested in the house went in and out quite regardless of the inhabitants and no wit disturbed by a large and very smoky fire. They are birds of low elevations between 3,000 and 5,000 feet but occasionally are found up to 8,000 feet.

## Genus RIPARIA.

*Riparia* Forster, Syn. Cat. Brit. B., p. 17 (1817).

Type, *Riparia riparia* Linn.

In the genus *Riparia* the tarsi are bare or merely have a single small tuft of feathers on the posterior edge; the tail is forked in varying degree but never to any great extent; the plumage is pale and dull and the tail-feathers are never spotted with white as in the next genus.

The breeding areas of the various forms of *R. riparia* and of *R. paludicola* overlap and they must therefore be treated as ecies.

*Key to Species.*

A. A tuft of feathers behind the tarsus; a well-defined collar across the breast ..... *R. riparia*, p. 231.
B. Tarsus quite bare; collar across breast obsolete or absent ..... *R. paludicola*, p. 234.

## Riparia riparia.

*Hirundo riparia* Linn., Syst. Nat., 10th ed. i, p. 192 (1758).

Type-locality: Sweden.

The typical form is darker than *diluta* and *subsoccata* and paler than *ijimæ*.

*Key to Subspecies.*

A. Paler, edgings to feathers of wing sandy-grey.
*a*. Larger; wing generally over 96 mm..... *R. r. diluta*, p. 232.
*b*. Smaller; wing generally under 96 mm... *R. r. subsoccata*, p. 233.
B. Darker, edgings to feathers whiter and more conspicuous..... *R. r. ijimæ*, p. 234

## (1145) Riparia riparia diluta.

THE SIBERIAN SAND-MARTIN.

*Cotile diluta* Sharpe & Wyatt, Mon. Hirund., i, p. 65 (1893) (Taschent).
*Cotile riparia.* Blanf. & Oates, ii, p. 272.

**Vernacular names.** *Ababil Paki* (Sind).

**Description.** Whole upper plumage smoky grey-brown, the tail and wing-quills darker; in fresh plumage there are pale edges to all the feathers, more conspicuously so on the lower back, rump and upper tail-coverts; lower plumage white with a broad band of smoky-grey across the upper breast; sides of neck, throat and flanks more or less suffused with smoky-grey; axillaries and under wing-coverts greyish-brown.

Fig. 51.—Foot of *R. r. diluta.*

**Colours of soft parts.** Iris dark brown; bill black; legs and feet dark brown.

**Measurements.** Total length about 125 mm.; wing 96 to 108 mm.; tail 46 to 51 mm.; tarsus about 10 mm.; culmen about 6 mm.

**Young birds** are more boldly marked with pale rufous edges to their feathers and have the chin and throat fulvous.

**Distribution.** Breeding in Western Siberia and in Winter South to North-West India to Sind, Punjab and North-West Frontier Provinces. Osmaston saw Sand-Martins, probably of this race, in Ladakh during July at about 14,000 feet.

**Nidification.** It is possible this form breeds in Northern Kashmir and Ladakh but the material in the British Museum is so poor that it is impossible to decide this point. Eggs taken by Smirnoff in Minisinsk, on the 3rd June, are just like those of the Common Sand-Martin. The eggs of two clutches, one of four and one of six eggs, vary between 17·0×11·3 and 18·9×12·7 mm.

**Habits.** Similar to those of the Common Sand-Martin. This race appears to be merely a Winter visitor to the plains of North-West India, arriving in late October and leaving at the end of March and early April. It is a common visitor to North-West India, South to Sind and the Bombay Presidency, East to the United Provinces and to Bihar, where it was obtained by Inglis.

## (1146) Riparia riparia subsoccata.

THE SMALL SAND-MARTIN.

*Cotyle subsoccata* Jerdon, B. of I., i, p 163 (1863) (Nepal).
*Cotile riparia* Blanf. & Oates, ii, p. 272 (part).
*Riparia riparia indica* Ticehurst, Ibis, 1916, p. 71 (Punjab).

**Vernacular names.** *Abali* (Hindi).

**Description.** Similar to the preceding bird but much smaller, paler and with the pectoral band less strongly developed.

**Colours of soft parts** as in *R. r. diluta*.

**Measurements.** Wing 91 to 98 mm. (generally under 96 mm.); tail 40 to 44 mm.; tarsus about 9 to 10 mm.; culmen about 5 to 6 mm.

**Distribution.** Breeding over the whole of Northern India from Afghanistan, Kashmir, Garhwal to Nepal and Buxa Duars. South it extends to Sind, the Punjab, United Provinces and Bihar.

The name *subsoccata*, which I use for this bird, has always been considered a synonym of *chinensis*, why, it is impossible to say, as Jerdon mentions the two principal characteristics which at once separate it from that species. "An irregular band of greyish-umber on the breast" and "tarsus *nearly* naked," *i. e.* not *quite* naked. The description he gives is an excellent one, whilst its small size, wings $3\frac{3}{10}$ in., suffices to show that the description is not that of *diluta* or *ijimæ*.

**Nidification.** The Small Sand-Martin is a resident species, breeding throughout its known area of habitat. Like other Sand-Martins it breeds in colonies, often of considerable size, making burrows in the sandy banks of rivers during the season of lowest water. The burrows vary according to the nature of the soil; where it is easy to work they may be as much as six feet in length or even more, where difficult, two feet or less. They end in a chamber, about 7 inches by 5, in which is placed the nest, a rough bed of grass and feathers, mixed with other odd scraps, picked up floating on the river or wind-blown on land. The eggs number three to six and are pure white, almost glossless and decidedly fragile. Forty eggs average 16·5×12·1 mm.: maxima **17·3**× 12·3 and 16·9×**12·6** mm.; minima **15·4**×12·0 and 16·9×**11·3** mm. In the Punjab and the North-West Frontier Province they breed in March.

**Habits.** Those of the genus. Outside the Punjab and the North-West Frontier Province this appears to be a rare bird, occurring only as a straggler elsewhere and that principally during the rainy season when individuals wander to great distances.

## (1147) Riparia riparia ijimæ.

THE EASTERN SAND-MARTIN.

*Clivicola r. ijimæ* Lönnb., J. Coll. Sci. Tokyo, xxiii, Art. 14, p. 38 (1908) (Sachalin).
*Cotile riparia.* Blanf. & Oates, ii, p. 272 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *R. r. diluta* but darker and with more conspicuous white, rather than sandy-grey, edgings to the feathers.

**Colours of soft parts** the same as in the other races.

**Measurements.** Wing 99 to 107 mm.; tail 49 to 52 mm.; tarsus about 12 mm.; culmen about 5 to 6 mm.

**Distribution.** Saghalin, Assam, Burma, Tibet, probably extending throughout the North of China.

**Nidification.** Professor Ijima found large numbers of these little Swifts nesting on the cliffs along the shores of Saghalien. In Assam there were several breeding colonies, each of about 40 pairs, in Cachar, Sylhet and Dibrugarh. In two instances colonies of the Eastern Sand-Martin and the Indian Sand-Martin were breeding at the same time within a mile of one another, but in both cases each colony contained nothing but the one species and there was no interbreeding. Nests and eggs are indistinguishable from others of the genus. The few eggs in my collection vary in length between 14·9 and 18·5 mm., and in breadth between 11·8 and 12·1 mm. They possibly have two broods, as I found birds breeding in October and November and again in January and February.

**Habits.** Those of the genus. These little birds when not breeding roost in bushes and low trees where there are no reeds or elephant-grass but, where these latter are available, always select them, occupying the same patch for weeks on end. They are very crepuscular and may be seen hawking insects over lakes and swamps until almost dark and again in the early morning they are among the first to wake and commence the daily quest for food. I once shot one of these Martins at Gunjong in N. Cachar at 2,500 feet, many miles from any water.

## Riparia paludicola.

*Hirundo paludicola* Vieill., Nouv. Dict. d'Hist. Nat., xiv, p. 511 (1817).

Type-locality: South Africa.

Our Indian bird is now generally accepted as a subspecies of the African bird, which differs from ours principally in being very much larger.

## (1148) Riparia paludicola chinensis.

THE INDIAN SAND-MARTIN.

*Hirundo chinensis* Gray, in Hardw. Ill. Ind. Orn., i, pl. xxxv, fig. 3 (1830–32) (China).
*Cotile sinensis.* Blanf. & Oates, ii, p. 273.

**Vernacular names.** *Abali* (Hind.); *Nakuti* (Beng.).

**Description.** Upper plumage greyish-brown, the wing-quills and tail darker; chin to lower breast smoky-grey; remainder of lower plumage white; the rump is generally paler than elsewhere and the crown rather darker; in quite fresh plumage the wing-coverts, scapulars and innermost secondaries have distinct pale sandy edges.

**Colours of soft parts.** Iris dark bright brown; bill black; legs and feet dark brown.

**Measurements.** Total length about 110 mm.; wing 88 to 94 mm.; tail about 38 to 41 mm.; tarsus 9 to 10 mm.; culmen about 5 mm.

**Young birds** have broad rufous margins to the feathers of the upper plumage, wings and tail and also have the throat and breast a paler grey.

**Distribution.** The whole of India as far South as the Bombay Presidency and the Deccan on the West and Cuttack on the East; Assam, Burma South to Tenasserim, the Indo-Chinese countries and South China. It is also found in both Formosa and the Philippines.

**Nidification.** In Assam I found this bird breeding from October to February. In Burma Hopwood took eggs in March, in Bengal and Bihar they breed practically throughout the cold and dry months of the year, *i. e.* from November to April, whilst in Northern and Western India fresh eggs have been recorded as late as May. They keep almost entirely to river-banks for nesting purposes but occasionally they may be found nesting in sandy cliffs away from water, or in banks of lakes and ponds. The burrows vary from 18 inches to about four feet in length, excluding the chamber, which may be about six inches long by rather less in width. The nest is a pad of grass and feathers, often quite bulky but sometimes very flimsy and poor. The eggs number two to four but sometimes two females appear to lay in one nest, as I have found seven or eight eggs in one nest, obviously of two different clutches. They are pure white and practically glossless even when first laid. One hundred eggs average 17·0 × 12·0 mm.: maxima **18·3** × 11·9 and 17·6 × **12·7** mm.; minima **14·5** × **11·2** mm.

**Habits.** These do not differ from those of other Sand-Martins. They keep very much to water when hawking for their insect prey but burning grass or jungle soon attracts them on account of the myriads of insects which endeavour to escape the fire by

flying above it. They are very common over the greater part of the area they inhabit and are familiar, confiding birds, often breeding in close vicinity to villages and towns. They collect in large colonies, seldom less than twenty or thirty pairs and sometimes ten times the latter number. They are not migratory but move locally a good deal, according to the water-supply and the consequent insect-life.

## Genus **PTYONOPROGNE**.

*Ptyonoprogne* Reichenbach, Syst. Av., pl. lxxxvii, fig. 6 (1850).

Type (by subsequent designation, Sharpe, Cat. B. M.), *Cotile rupestris*.

The genus *Ptyonoprogne* is very close to the Sand-Martins of the genus *Riparia* but its various species differ greatly in habits and in having white spots on all but the central and outermost tail-feathers.

It has been suggested that Reichenbach's figures of this genus cannot be determined as being those of any one particular genus. They, however, seem to me to show well the characteristics of this group of Swallows and there is no reason why the name should be discarded. Gray, by giving *Cotile riparia* as the type of Reichenbach's new genus, added to the confusion, no true *Cotile* or *Riparia* showing the white spots on the tail as clearly depicted in the plate.

*Key to Species.*

A. Chin and throat streaked or spotted.
  *a*. Wing over 50 mm.; under tail-coverts much darker than abdomen ..... *P. rupestris*, p. 236.
  *b*. Wing under 50 mm.; under tail-coverts and abdomen concolorous ..... *P. concolor*, p. 237.
B. Chin and upper throat unmarked ..... *P. o. obsoleta*, p. 238.

## (1149) Ptyonoprogne rupestris.

THE CRAG-MARTIN.

*Hirundo rupestris* Scop., Ann. i. Hist. Nat., p. 167 (1769) (Tyrol).
*Ptyonoprogne rupestris*. Blanf. & Oates, ii, p. 274.

**Vernacular names.** None recorded.

**Description.** Upper plumage, sides of head and neck, wings and tail ashy-brown; a large white spot on all the tail-feathers except the central and outermost pair; chin, throat and upper breast dull rufous-white spotted with dull brown; flanks dark ashy; lower breast and abdomen rufous-ashy; under tail-coverts dark brown.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet fleshy-white to pale fleshy-brown.

**Measurements.** Total length about 155 mm.; wing 126 to 136 mm.; tail 54 to 57 mm.; tarsus about 12 mm.; culmen about 8 mm.

**Young birds** have the feathers of the upper plumage margined with rufous; the whole underparts are pale dull-rufous.

**Distribution.** North Africa and South Europe, Western Asia to Turkestan, Tibet and Western China in Kansu and Yunnan; South to North-West India, extending to Mysore, the Nilgiri and Palni Hills and North Travancore. Eastwards its limits have not been defined in the South but Davison saw Crag-Martins, probably of this species, in Tenasserim.

**Nidification.** The Crag-Martin breeds in the Himalayas between 6,000 and 15,000 feet, at which latter elevation Osmaston saw nests near the Tso Moriri Lake. They make a typical saucer- or half-saucer-shaped nest of pellets of mud, well lined with feathers but open and often unprotected on the top, though as a rule it is built under the shelter of a projecting rock. In the Himalayas they invariably breed in company on cliffs and under or against rocks but in Europe they are said to be less gregarious, often building their nests singly in caves. The eggs, which number three to five, are very like those of the Common Swallow, white with spots and blotches of pale purple and red-brown. In shape they are long ovals, the texture is fine but the surface glossless. Eighty eggs (including 50 Jourdain) average 20·11 × 14·0 mm.: maxima **23·2 × 14·5** and 22·8 × **15·0** mm.; minima **19·0 × 13·4** and 19·2 × **13·1** mm. The breeding-season is May and June in South Europe and June and July in the Himalayas.

**Habits.** Like all Swallows the Crag-Martins capture their insect-food on the wing but they are less speedy and direct in their movement than those of the genus *Hirundo*. They are true migrants, wandering far South in Winter and are always more or less gregarious but especially when moving North or South.

## (1150) Ptyonoprogne concolor.

THE DUSKY CRAG-MARTIN.

*Hirundo concolor* Sykes, P. Z. S., 1833, p. 83 (Deccan).
*Ptyonoprogne concolor.* Blanf. & Oates, ii, p. 275.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage, wings and tail dark sooty-brown; all but the central, or two central, and outermost pairs with a white spot on the inner webs; chin, throat and fore-neck dull rufous streaked with blackish-brown; remainder of lower plumage dull sooty-brown, with faint indications of rufous margins and dark shafts to the feathers.

**Colours of soft parts.** Iris dark brown; bill dark brown to black; legs and feet brown.

**Measurements.** Total length about 125 mm.; wing 102 to 110 mm,; tail 44 to 47 mm.; tarsus about 10 to 11 mm.; culmen about 6 to 7 mm.

**Young birds** have the feathers of the upper parts margined with rufous.

**Distribution.** From the Nilgiri Hills in the South to the Himalayas but not to Sind. East it extends to Bihar and the drier districts of Western Bengal.

**Nidification.** Unlike so many of our Indian Swallows the Dusky Crag-Martin does not breed in communities, though in suitable places many nests may be built quite close to one another. The nest is the typical Swallow's half-cup, open above, made of pellets of mud and thickly lined with soft feathers. The site chosen is any convenient wall or cliff and they build inside verandahs of houses, in the walls of wells, in old forts or mosques, or against the rocks of cliffs or river-banks. The eggs number three or four and are like those of *P. rupestris*, but much smaller, broader and less pointed. One hundred eggs average 17·6 × 12·8 mm.: maxima **19·2 × 14·0** mm.; minima **16·1 × 13·9** and **16·5 × 12·0** mm.

In the Plains they seem to breed twice a year, first in February and May and again after the rains have commenced from July to October. Odd nests may, however, be found in almost any month of the year. In the hills they breed mostly in April, May and early June.

**Habits.** This little Swallow is not gregarious, though sometimes a few may be seen hunting for insects together. Though capable of considerable speed their flight is generally quiet and leisurely, a soft little "chit-chit" being uttered as they wheel about. They are non-migratory birds but desert some areas during the hottest and driest months of May and June.

## (1151) Ptyonoprogne obsoleta obsoleta.

THE PALE CRAG-MARTIN.

*Cotile obsoleta* Cabanis, Mus. Hein., i, p. 50 (1850) (N.E. Africa).
*Ptyonoprogne obsoleta.* Blanf. & Oates, ii, p. 275.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage pale greyish-brown; the wing-quills and rectrices a little darker and browner and the latter with white spots on all but the central and, generally, the outermost pair; lores blackish-brown; sides of the head grey; lower plumage fulvous-white, darker and more grey on the breast, flanks and vent; under tail-coverts grey; axillaries and under wing-coverts vinous-grey. Birds in fresh plumage have a beautiful vinous tinge on the lower plumage.

**Colours of soft parts.** Iris very dark brown; bill dark brown to black; legs and feet dusky greyish-brown to hoary-black.

**Measurements.** Total length about 140 mm.; wing 115 to 123 mm.; tail 50 to 53 mm.; tarsus about 11 mm.; culmen about 7 to 8 mm.

**Distribution.** Nubia and Egypt, North Arabia, Palestine, Persia, Afghanistan, Baluchistan to Sind and North-West Frontier Provinces. I cannot separate our Indian birds from those found in North-East Africa. Judging from the series in the British Museum, about 30 specimens, they are certainly no paler than the latter.

**Nidification.** Except for one doubtful report by Col. Butler as to its supposed breeding at Jask on the Mekran Coast and the nests taken by Rattray in Baluchistan, this Martin has not yet been known to breed within our limits. Ticehurst hunted the lower hills of Sind in vain for it in Summer but, as he suggests, it very probably breeds in some of the higher hills. In North Africa it breeds up to an elevation of some 12,000 feet, frequenting both cliffs and buildings for the purpose. Rattray's nests were taken at Khar and Thal on the Baluchistan Frontier, and both nests and eggs were like those of *P. rupestris* but, as one would have expected, much smaller. Fifteen eggs average 19·3 × 14·1 mm.: maxima **19·9** × 13·0 and 19·5 × **16·0** mm.; minima **17·1** × **12·0** mm.

In Africa it is said to breed in March but Rattray's eggs were taken in April and May.

**Habits.** Do not differ from those of the Crag-Martin.

## Genus **HIRUNDO.**

*Hirundo* Linn., Syst. Nat., 10th ed. i, p. 191 (1758).

Type, *Hirundo rustica* Linn.

The genus *Hirundo* comprises the true Swallows, which are for the most part familiar and well-known birds.

The species of this genus have the greater part of the back deep, glossy steel-blue. In the majority the tail is deeply forked, in a few it is nearly square.

*Key to Species.*

A. Rump blue or brown; lower plumage not streaked.
  *a*. White spots on tail.
    *a'*. A broad complete or semi-complete pectoral band ..... *H. rustica*, p. 240.
    *b'*. No trace of a pectoral band.
      *a''*. Chin, throat and fore-neck white .. *H. smithii*, p. 245.
      *b''*. Chin, throat and fore-neck chestnut. *H. javanica*, p. 243.
  *b*. No white spots on tail ..... *H. fluvicola*, p. 246.
B. Rump chestnut; lower plumage streaked.. *H. daurica*, p. 248.

## Hirundo rustica.

*Key to Subspecies.*

A. Pectoral band almost complete; chin and throat chestnut, abdomen pale fulvous .. *H. r. rustica*, p. 240.
B. Pectoral band broken; chin and throat chestnut; abdomen practically white .... *H. r. gutturalis*, p. 241.
C. Pectoral band broken; chin, throat and abdomen deep chestnut ..... *H. r. tytleri*, p. 242.

### (1152) Hirundo rustica rustica.

THE COMMON SWALLOW.

*Hirundo rustica* Linn., Syst. Nat., 10th ed. i, p. 191 (1758) (Sweden); Blanf. & Oates, ii, p. 277.

**Vernacular names.** *Ababil* (Hind.); *Talai-illatha-kuruvi*, *Adai-kalan-kuruvi*, *Tam-padi* (Tam.); *Wanna-kovela* (Tel.); *Paras pitta* (Mharis and Gonds); *Pyan-klwa* (Burm.); *Wéhelihiniya* (Cing.).

**Description.** Forehead deep chestnut; whole upper plumage and wing-coverts glossy purple-blue; wing-quills and tail black edged with glossy green, all the tail-feathers except the central pair with an oblique patch of rufous-white or white on the inner webs; lores black; chin and throat chestnut; a broad band of glossy blue-black across the breast, some of the feathers in the centre edged with rufous and the chestnut of the throat often encroaching on the pectoral band; remainder of lower surface, axillaries and under wing-coverts creamy pale rufous, the under tail-coverts darker and more rufous. In a few specimens the longest under tail-coverts are sub-tipped with black.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet black.

**Measurements.** Length up to about 200 mm., according to the length of the outer tail-feathers; wing 110 to 130 mm.; tail 65 to 121 mm.; tarsus 10 to 13 mm.; culmen about 8 to 9 mm.

**Young birds** are browner and less glossy above; the pectoral band is brown and the throat, chin and forehead much paler chestnut.

**Distribution.** Breeding in Europe, North-West Africa, West Siberia to the Yenesei, Asia Minor, Himalayas from Kashmir to Sikkim, Tibet and the Assam Hills. Breeding birds from Afghanistan, Baluchistan, Gilgit, Ladakh and Northern Tibet seem all to be more near to the next race, having very white underparts and very broken pectoral bands. Kashmir birds I retain with *rustica* with considerable doubt. The pectoral bands

are much broken up with rufous, though the abdomen is as dark as it is in most European species; on the other hand, the under tail-coverts are nearly always more white than the abdomen instead of more rufous as it is in the typical form. In Winter the Swallow extends to South Africa, every part of India, Ceylon, the whole of Burma and even to Borneo and the Philippines.

**Nidification.** The Common Swallow breeds in great numbers throughout Kashmir, Kuman and Garhwal and in fewer numbers East to Sikkim between 4,000 and 8,000 feet but principally between 5,000 and 7,000 feet. As in Europe so in India, they build nests of pellets of mud, well lined with feathers and placed on any convenient rafter, ledge or projection in verandahs or inside the buildings themselves. The nest is shallow saucer-shape and sometimes when built on a flat surface there is no mud used for the bottom of the nest, though retaining walls are built round the lining. The eggs number four or five, rarely six and are white with spots and specks of reddish-brown, deep purple-brown, or, less often, pinky-brown, with a few secondary marks of lavender and grey. In shape they are long ovals, sometimes blunt, sometimes pointed. One hundred Indian-taken eggs average 19·8 × 13·7 mm. as against 20·2 × 13·9 mm. for fifty European eggs: maxima **22·8** × 14·0 and 22·1 × **14·2** mm.; minima **17·9** × **12·1** mm.

The birds breed from early April to late July and certainly generally have two broods and occasionally three.

**Habits.** The Common Swallow is a migratory species in India as elsewhere and in the Winter is found throughout the Plains down to Ceylon, though the next form seems to be the most common in that island and everywhere specimens are to be seen equally referable to one or the other. The great Southern migration starts in September and birds reach Ceylon in October, but the Northern migration takes place throughout the Empire in April or the last few days of March. Young birds fledged in June and July seem to come to India in July and August and, on the other hand, the last-fledged birds of the previous year do not return to the Himalayas until May or June, so that odd birds are seen in the Indian plains in almost every month of the year. Before migration they assemble in immense flocks, collecting on the reeds or on the telegraph wires according as they are available. Their soft, twittering little notes and pleasant attempts at song, as well as their graceful fluent flight, are too well known to need description.

## (1153) Hirundo rustica gutturalis.

THE EASTERN SWALLOW.

*Hirundo gutturalis* Scop., Del. Flor. et Faun. Insubr., ii, p. 93 (1786) (New Guinea); Blanf. & Oates, ii, p. 277.

**Vernacular names** as in the preceding bird. *Nok-i-en* (Siam).

**Description.** Differs from the Common Swallow in having much whiter underparts and in the chestnut of the chin and throat encroaching on to the pectoral band.

**Colours of soft parts** as in *H. r. rustica.*

**Measurements.** Wing 112 to 125 mm.

**Distribution.** Breeding in Eastern Siberia from the Yenesei to Japan. Breeding birds from the high desert countries of Afghanistan, Baluchistan, Gilgit, Ladakh, Northern Tibet and North-West China and all those breeding in the mountains South of the Brahmaputra must be accepted as this form. In winter it migrates to Eastern India, Burma, the Malay States and Islands, Indo-Burmese countries, Borneo, Sumatra, Java, Philippines, South China, New Guinea and, occasionally, even to North Australia. In Western India it occurs in Sind, the Mekran coast, Punjab and North-West Frontier Provinces. Birds breeding in Cachar, Manipur and the Northern Burmese hills are also referable to this race.

**Nidification.** In China these birds breed during May and June in temples, mosques or dwelling-houses and as they are considered lucky are never interfered with, but little boards are placed below the nests to prevent droppings falling on those living in the buildings. In North Cachar I found them breeding in the Naga houses at 4,000 feet upwards and, rarely, as low down as 2,500 feet in my own bungalow. The only twenty eggs I have been able to measure average 18·8 × 13·4 mm.

**Habits.** Quite similar to those of the Common Swallow.

## (1154) Hirundo rustica tytleri.

TYTLER'S SWALLOW.

*Hirundo tytleri* Jerdon, B. of I., iii, p. 870 (1864) (India) (Dacca, Bengal, *Oberholser*); Blanf. & Oates, ii, p. 278.

**Vernacular names.** None recorded.

**Description.** Differs from the two previous races in having the whole breast, flanks, abdomen and under tail-coverts almost as dark a colour as the chestnut throat; the black pectoral collar is confined to the sides of the upper breast, occasionally showing to a very slight degree only in the centre.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 103 to 123 mm.; tail 74 to 79 mm.; tarsus 10 to 11 mm.; culmen about 8 to 9 mm.

**Distribution.** Breeding in Kamschatka and extreme North-East Siberia; in Winter to Eastern Bengal, Assam and Burma.

**Nidification.** As far as is known similar in every respect to the other races of *H. rustica.* Supposed eggs of this subspecies from

Eastern Manchuria sent me by Smirnoff are indistinguishable from those of the Eastern Swallow.

**Habits.** As in the other races. This Swallow visits Assam, extreme Eastern Bengal, Manipur and Burma in some numbers during Winter, arriving in August to October and leaving February to early April. Young birds, as usual, come first and leave last.

## Hirundo javanica.

This species has been separated from *Hirundo* as a genus (*Hypurolepis* of Gould) on account of its short, slightly forked tail. The difference is only one of degree and I cannot see any necessity for the division; to be consistent one would have to again separate *Hirundo smithii* on account of its longer tail and again *H. daurica* on account of other minute structural differences.

The species also has been much split, probably on insufficient data and the material in the British Museum does not support the separation into more than two races, though Oberholser's *H. j. abbotti* from the Anamba Islands may have to be kept separate on account of its larger size. Birds from the Philippines, Malay Peninsula, Burma and the Andamans seem to have paler chestnut throats and foreheads than those from Java, Borneo, Sumatra and Palawan but there is so much overlapping that I cannot discriminate between them.

*Key to Subspecies.*

A. Upper plumage glossed with purple-blue, bill much larger ..... *H. j. javanica*, p. 243.
B. Upper plumage glossed with green, bill much smaller..... *H. j. domicola*, p. 244.

### (1155) Hirundo javanica javanica.

THE JAVAN HOUSE-SWALLOW.

*Hirundo javanica* Sparrm., Mus. Carls., iv, pl. 100 (1789) (Java); Blanf. & Oates, ii, p. 279.

**Vernacular names.** None recorded.

**Description.** Forehead, chin, throat, sides of the head and neck and upper breast deep ferruginous; lores black; upper plumage and lesser wing-coverts black glossed throughout with deep blue; greater and median wing-coverts and innermost secondaries black edged with glossy blue; quills blackish-brown;

*Hirundo erythrogaster* never occurs within our limits, specimens which have been taken for this bird being merely extra deep-coloured specimens of *H. r. rustica* or pale specimens of *H. r. tytleri*.

tail blackish-brown, edged with glossy blue on the outer webs and all but the central pair with a spot of white near the tip on the inner web; lower plumage pale ashy-brown, albescent on the centre of the abdomen; under tail-coverts ashy-brown with white tips and black subterminal patches.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet brownish-black.

**Measurements.** Total length 125 to 130 mm.; wing 97 to 107 mm.; tarsus about 10 to 12 mm.; culmen about 10·5 mm. with a breadth at the forehead of about 7·5 mm.

**Distribution.** The Andamans, Arakan, Tenasserim, Malay Peninsula and Islands, Java, Sumatra, Borneo, Philippines and other islands.

**Nidification.** Theobald took the nests of this Swallow in Tenasserim during April and Hopwood also obtained them in Arakan in March. In the first instance they were built against the under parts of "snags" projecting some four feet over water, in the second they were built on a cliff overhanging the sea on a ledge of rock. In the Andamans Mr. C. W. B. Anderson took many nests in May, which were also built on rocks on the sea-coast. The nests are shallow half-saucers of mud, lined first with fine roots and then with many feathers. The eggs number three or four and are small pale replicas of those of the Common Swallow. Twenty-four eggs average 16·8 × 12·5 mm.: maxima 18·7 × 13·0 mm.; minima 15·0 × 11·9 mm.

**Habits.** Except that this form seems to be a frequenter of sea-coasts, it differs in habit in no respect from the following, better-known race.

## (1156) Hirundo javanica domicola.

THE NILGIRI HOUSE-SWALLOW.

*Hirundo domicola* Jerdon, Mad. J. L. S., xiii, pt. i, p. 173 (1844) (Nilgiri Hills).
*Hirundo javanica.* Blanf. & Oates, ii, p. 279 (part).

**Vernacular names.** The same in Tam. and Cing. as for the Common Swallow.

**Description.** Similar to the preceding bird but with a distinct green-blue instead of a purple-blue gloss and with a much smaller bill.

**Colours of soft parts** as in *H. j. javanica.*

**Measurements.** Wing 98 to 103 mm.; bill, culmen about 8 mm., with a breadth at the forehead of about 6 mm.

**Distribution.** Hills of Southern India from the Nilgiris to Travancore and Ceylon.

**Nidification.** The Nilgiri House-Swallow breeds from February to May in the hills of South India and from April to June

in Ceylon and again in September (*Wait*). It makes its nest either in buildings, deserted or occupied, on cliffs, or in caves and railway tunnels. The nests are like those of the Common Swallow but much deeper in comparison and the birds are said to use the same nest year after year, merely refurnishing it with a new lining. They rear two broods normally, one immediately after the first has flown, whilst sometimes, in Ceylon especially, they rear a third family in September. The eggs number three or four and are like those of the preceding bird. Fifty eggs average 17·4 × 12·5 mm.: maxima **19·5** × 13·6 and 19·0 × **14·2** mm. (*Hume*); minima **15·7** × **12·0** mm.

**Habits.** This little Swallow is essentially a bird of the higher hills, not being found below about 2,000 feet and ascending to the tops of the highest ranges, about 9,000 feet. It is the most familiar and best-known Swallow in Southern India and is quite regardless and fearless of mankind. Its flight is easy and graceful, if not very swift, and it utters constantly a soft little chirp as it hawks about for insects. It is resident wherever found, not even changing to higher or lower elevations with the seasons. Owners of nests are said to often use them as roosting places after all the last young have left for good; usually they roost in caves and hollows of cliffs, less often under the eaves of houses.

## Hirundo smithii.

*Hirundo smithii* Leach, App. to Tuckey's Voy. Congo, p. 407 (1818).

Type-locality: Congo River.

The African Wire-tailed Swallow is a slightly smaller bird on the average than our Indian form, with rather shorter "wires" to the tail. The differences are very slight and perhaps hardly of subspecific value.

## (1157) Hirundo smithii filifera.

The Indian Wire-tailed Swallow.

*Hirundo filifera* Stephens, Gen. Zool., xiii, p. 78 (1826).
*Hirundo smithii.* Blanf. & Oates, ii, p. 280.

**Vernacular names.** *Leishra* (Hind.).

**Description.** Forehead, crown and nape chestnut; lores and a patch under the eye black. Whole upper plumage, wings and tail glossy steel-blue; the concealed portions of the wing- and tail-quills black and the latter with a white spot on the inner web of all but the central pair of feathers; lower plumage white.

**Colours of soft parts.** Iris hazel or dark brown; bill, legs and feet black.

**Measurements.** Wing 113 to 120 mm.; tail 70 to 132 mm.;

tarsus 10 to 11 mm.; culmen about 8 mm. Ticehurst gives the wing-measurements of *H. smithii* as 109 to 114 mm. only, but the British Museum series run up to 123, larger than any specimen of Indian *H. filifera*.

**Young birds** have the crown a paler duller chestnut and the upper parts less glossy.

**Nestlings** have the crown brown and the upper plumage brown, generally showing a gloss on some parts; lower parts tinged with fulvous.

**Distribution.** Persia, Afghanistan, Baluchistan, all India South to Mysore and North Travancore; East to Bihar, Orissa and Western Bengal. It is not found in the wetter districts of Eastern Bengal or in Assam but occurs in North-West Burma, the North and South Shan States and South Burma to Pegu and Tenasserim.

**Nidification.** This handsome Swallow breeds throughout its habitat in the Plains from February to April and again a second time from August to October. In addition odd nests may be found in almost any month, though in the hottest weeks of May and June few birds attempt to breed. In the hills and Himalayas where they breed up to 6,000 feet (*Dodsworth*), the breeding-season only lasts from May to July. The nest is a deep semi-cu made, as usual, of mud and is lined first with fine scraps of grass and then feathers. It is built against rocks, under bridges and culverts or under projections of buildings, walls and roofs. It almost invariably selects a site alongside or actually over water and few nests are built at any distance from river, tank or well. The eggs number two to four, most often three, and are like glossy well-marked examples of those of the Common Swallow; they are in fact the best and brightest marked of all Swallows' eggs. One hundred eggs average 18·4 × 13·1 mm.: maxima **20·0** × 13·0 and 19·1 × **13·8** mm.; minima **16·1** × 12·9 and 16·9 × **12·2** mm.

**Habits.** Except that it keeps so closely to the vicinity of water, there is little in its habits that differs from those of the Common Swallow. Its flight is certainly swifter and it is more energetic and also, perhaps, rather more noisy but, like that bird, it feeds its young on the wing and is most active in the early mornings and evenings. It is resident wherever found, from Sind to Tenasserim. It is not truly gregarious either in breeding or at other times.

## (1158) Hirundo fluvicola.

THE INDIAN CLIFF-SWALLOW.

*Hirundo fluvicola* Jerdon, Blyth, J. A. S. B., xxiv, p. 470 (1855) (Bundelkhund); Blanf. & Oates, ii, p. 280.

**Vernacular names.** None recorded.

**Description.** Lores black; forehead, crown and nape dull chestnut with dark shaft-lines; back and scapulars glossy steel-blue; rump and upper tail-coverts dull brown, the feathers edged paler; tail blackish-brown; wings dark brown, the lesser coverts with glossy edges; a patch under the eye and behind it dark brown; sides of head, chin, throat and breast profusely streaked with blackish and sometimes tinged with fulvous; remainder of lower plumage white tinged with fulvous, darker and more brown on the flanks, which are faintly streaked.

**Colours of soft parts.** Iris brown; bill black; legs and feet blackish-brown to black.

**Measurements.** Total length about 120 mm.; wing 89 to 94 mm.; tail 40 to 44 mm.; tarsus about 9 to 10 mm.; culmen about 6 mm.

**Young birds** have the crown dull brown; the feathers of the mantle edged with rufous and those of the rump, upper tail-coverts and wing with fulvous.

**Distribution.** The greater part of India from Kashmir and the Himalayas as far South as Coimbatore and East to Sikkim and Etawah. It is not found in Sind.

**Nidification.** The Indian Cliff-Swallow breeds twice a year, first from January to March and secondly from July to October but eggs have been taken in every month of the year. They build in colonies of any number from twenty to six hundred pairs and place their nests, touching one another, against any overhanging cliff, bridge, wall or even ruined temples and houses. The nests are made of mud but differ from those of most of the Swallows already dealt with in being retort-shaped, the tubular entrances sticking out for some two to six inches from the nest itself. The lining is of grass and feathers and, it is said, sometimes mixed with leaves. The eggs number two to four, generally three, and vary in colour from pure white to white spotted with yellowish- or pale reddish-brown. Eggs at all boldly marked are exceptional. One hundred eggs average 18·5 × 31·1 mm.: maxima **20·8** × 12·6 and 19·2 × **14·0** mm.; minima **16·0** × 13·0 and 18·0 × **12·0** mm.

**Habits.** The Indian Cliff-Swallow is resident in the Plains and perhaps in the foot-hills but the birds which visit Kashmir and which are found up to some 6,000 feet in Summer seem to leave the hills in Winter from October to April. They keep almost exclusively to the neighbourhood of water when breeding, but at other times may be found at considerable distances from it. They associate in large numbers at all times and their flight is rather feeble for a bird of this family.

## Hirundo daurica.

*Key to Subspecies.*

A. Lower plumage pale rufous or albescent rufous.
  *a*. Rump and upper tail-coverts of practically the same colour throughout
    *a'*. Wing 120 mm. or over.
      *a''*. Shaft-streaks on rump absent or obsolete; lower plumage decidedly tinged with rufous, with fine striations ..... *H. d. daurica*, p. 248.
      *b''*. Shaft-streaks on rump distinct; lower plumage nearly white, with coarse striations..... *H. d. striolata*, p. 249.
    *b'*. Wing under 120 mm.
      *c''*. Striations on lower plumage much wider than the shafts .. *H. d. nepalensis*, p. 250.
      *d''*. Striations on lower plumage hardly broader than the shafts. *H. d. erythropygia*, p. 251.
  . Rump paler posteriorly and becoming creamy-white on the upper tail-coverts .. ..... *H. d. rufula*, p. 252.
B. Lower plumage chestnut..... *H. d. hyperythra*, p. 253.

The inter-relationship of these various forms still requires elucidation. Thus in the area South of the Brahmaputra where *H. d. nepalensis* is said to breed, but where I have never seen it, we have two forms of *H. daurica* breeding. *H. d. daurica* is a regular breeding bird during August and September, rarely July, whilst *H. d. striolata* is an irregular visitor breeding in April and May and again leaving the country before *H. d. daurica* arrives. In this Province *H. d. daurica* breeds in human habitations only, whereas *H. d. striolata* is purely a cliff builder. It is possible that both these forms are merely visitors from their normal breeding haunts, which do not overlap. More specimens, obtained when nesting, are required from China, Assam and the intervening countries.

### (1159) Hirundo daurica daurica.

THE DAURIAN STRIATED SWALLOW.

*Hirundo daurica* Linn., Mant. Plant., p. 582 (1771) (Siberia); Blanf. & Oates, ii, p. 282.

**Vernacular names.** *Midili* (Khasia).

**Description.** Lores black; a line over them chestnut; sides of the neck and behind the eye chestnut, produced on each side as a broken collar on the hind neck; upper plumage, lesser and median wing-coverts and upper tail-coverts glossy deep-blue; rump chestnut with obsolete or ill-defined black lines, sometimes

HIRUNDO D. STRIOLATA, 3/4 life size.
The Chinese Striated Swallow.

altogether absent; tail dark brown; wing-quills and greater coverts blackish-brown, edged with glossy blue in quite freshly-moulted specimens; plumage below pale rufous with a rufous tinge, streaked throughout with blackish shaft-lines; under tail-coverts fulvous with broad black tips.

**Colours of soft parts.** Iris dark brown; legs and feet dark brown to blackish.

**Measurements.** Total length between 210 and 230 mm., according to length of tail; wing 120 to 131 mm., generally well over 125 mm.; tail 95 to 115 mm.; tarsus 14 to 15 mm.; culmen about 7 to 8 mm.

**Distribution.** Eastern Siberia, West to Trans-Baikalia, Amur, Ussuri, Mongolia, Kansu, Tibet and Assam.

**Nidification.** This Striated Swallow breeds in Trans-Baikalia in July, making a retort-shaped nest of mud under the eaves of buildings The lining is of feathers but sometimes, it is said, of wool. A rather isolated, but apparently regular, breeding place of this form is in the hills of Assam South and East of the Brahmaputra. In Shillong a few birds arrive every year in late July or early August and at once commence building in the offices and houses of that hill station, leaving immediately their family cares are finished in October; indeed, many birds leave at this time, deserting nests containing young or eggs, having suffered some mishap with their first brood. In the North they are said to lay four to six eggs but in Assam they lay three to five. They are pure white, almost glossless, fine in texture and rather pointed ovals in shape, though blunt eggs are not rare. Fifty eggs average 21·0 × 14·6 mm.: maxima **22·0** × 14·2 and 20·6 × **15·0** mm.; minima **16·4** × 13·6 and 17·3 × **13·1** mm.

**Habits.** Those of the genus and there is very little in them different to the habits of the Common Swallow. They are hardly truly migratory, for there is no great migration movement North to South in Winter; on the other hand, most birds leave their extreme Northern haunts during the coldest months and the few birds seen in Assam certainly only stay from June (Sadiya) to the end of October.

## (1160) Hirundo daurica striolata.

THE CHINESE STRIATED SWALLOW.

*Hirundo striolata* Temm. & Schl., Faun. Jap., Aves, p. 33 (1847) (Java); Blanf. & Oates, ii, p. 281.

**Vernacular names.** *Inrui-gobi* (Kacha Naga).

**Description.** Similar to *H. d. daurica* but with more definite shaft-lines on the rump and the whole lower parts white, only faintly tinged with fulvous and with much broader streaks of black.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 120 to 131 mm.; tail 80 to 105 mm.; tarsus 13 to 14 mm.; culmen 8 to 9 mm.

**Distribution.** This is apparently a Southern form of the last, breeding in Central and South China and the hills of Annam, Yunnan, Northern Burma and Assam. It has been found South to Java, Flores, Sumba, Wetter and other islands.

**Nidification.** Vaughan found this bird breeding in Howlich and Styan and La Touche record it as commonly breeding in Fohkien and Chinkiang. In all these places it appears to breed only in buildings, making a mud nest, either with a retort-shaped entrance or an ordinary circular hole or, in a few cases, quite open at the top like those of the House-Swallow. In the Khasia and North Cachar Hills, where it is an irregular visitor, it builds on steep cliffs in small colonies and makes retort-shaped nests placed close together and thickly lined with soft feathers, often mixed with scraps of grass. The eggs number three to five and are like others of this species but occasionally have a few faint reddish spots. Fifty eggs average 19·6×15·2 mm.: maxima **22·2×15·1** and 21·6×**15·8** mm.; minima **17·5**×14·6 and 19·0×**13·5** mm. The breeding-season in China is May and June but in the Khasia Hills is April and May.

**Habits.** Like those of the preceding bird but more migratory, for, although there is no definite migration in Spring and Autumn and many birds are resident throughout the year, others arrive in their more Northern breeding places about April and leave again in September and October, whilst other birds again wander far into the Southern islands in the Winter. Harington procured this bird in the Shan Hills in Summer and Coltart obtained specimens in May and June—undoubtedly breeding—in Margherita. It is probably often overlooked, not being distinguishable on the wing from *H. d. nepalensis*.

## (1161) **Hirundo daurica nepalensis.**

HODGSON'S STRIATED SWALLOW.

*Hirundo nepalensis* Hodgs., J. A. S. B., v, p. 780 (1836) Central Nepal); Blanf. & Oates, ii, p. 282.

**Vernacular names.** *Inrui-gobi* (Kacha Naga).

**Description.** Differs from *H. d. daurica* in being a little paler below and in having the rump paler posteriorly. It is a decidedly smaller bird.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 109 to 120 mm.; tail 88 to 100 mm.; tarsus 13 to 14 mm.; culmen 7 to 8 mm.

**Distribution.** Breeding in the Himalayas and found in Winter over the whole of Northern India and Burma. Although said to

be a breeding bird in Assam, China etc., it certainly does not breed in Eastern Assam or South of the Brahmaputra, where it is replaced by the very similar but slightly larger *H. d. daurica*. In China the reports of Hodgson's Swallow as breeding probably all refer to *H. d. striolata*.

**Nidification.** Hodgson's Striated Swallow breeds throughout the Himalayas up to at least 10,000 feet and down to about 3,500 feet. It makes a retort-shaped nest of mud pellets densely lined first with fine roots and grass and then with soft feathers. The tubular entrance is often very long, measuring from 6 to 13 inches. The site selected is either under the eaves of a hut or on a cliff under the protection of a rock but in neither case do the birds breed in colonies. The eggs vary from three to five and the average size of sixty eggs is 20·8×14·4 mm.: maxima **22·0×14·0** and 20·7×**15·0** mm.; minima **19·1×13·6** mm. The principal breeding months are May, June and July but eggs may be found both in April and August, and many birds have two broods.

**Habits.** Hodgson's Striated Swallow is resident over a great portion of its area but deserts the higher ranges in Winter and at that season may be found over the whole of Northern India and Burma. I never met with it in South Assam but Stevens found it a common cold weather visitor in the North and it must sometimes occur in the South, as in Burma it extends to Pegu.

## (1162) Hirundo daurica erythropygia.

SYKES'S STRIATED SWALLOW.

*Hirundo erythropygia* Sykes, P. Z. S., 1832, p. 83 (Poona); Blanf. & Oates, ii, p. 283.

**Vernacular names.** *Masjid-ababil* (Hind.).

**Description.** Very similar to *H. d. striolata*. The rump has no striations or these are very faint; the lower surface is white, the breast, flanks and abdomen are tinged with fulvous and the striæ even more narrow and scanty than in *H. d. daurica*.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 101 to 111 mm.; tail 65 to 82 mm.; tarsus 12 to 13 mm.; culmen 7 to 8 mm.

**Distribution.** The whole of India from the foot of the Himalayas, South to the Nilgiris as a breeding bird and wandering into Travancore and Ceylon in Winter. East it is found commonly in Western Bengal and, rarely, as far East as Calcutta.

**Nidification.** Sykes's Striated Swallow breeds from April to August over the greater part of India, ascending to the highest hills in the South of India and to about 3,000 or 3,500 feet in the Himalayas. Jones took several nests in the Bhagat State at the lower of these elevations. The nest is of the usual retort shape and is built on any kind of building, under culverts and bridges,

or against rock and walls etc. The eggs number three or four and are pure white. Sixty eggs average 21·0 × 14·4 mm.: maxima **21·8** × 14·0 and 20·9 × **15·0** mm.; minima **17·8** × 13·9 and 18·5 × **12·9** mm.

These Swallows breed as a rule singly but sometimes collect in small colonies from half-a-dozen to a score of nests. They often have two broods and occasionally three in a year and, even after the last young have left, the old birds continue to roost in the nests.

**Habits.** This Swallow is a resident species wherever found, though it may move locally under pressure of want of food or other conditions. They are very familar birds and, though found sometimes far from human habitations, seem to prefer towns and villages to wilder country. In their general habits they differ in no way from other Swallows but their notes have been described as softer and more musical.

## (1163) Hirundo daurica rufula.

THE EUROPEAN STRIATED SWALLOW.

*Hirundo rufula* Temm., Man. d'Orn., 2nd ed., iii, p. 298 (1835) (Egypt); Blanf. & Oates, ii, p. 284.

**Vernacular names.** None recorded.

**Description.** Differs from the other forms in having the posterior rump very pale; the neck collar of chestnut is broad and well-defined; the lower parts are fulvous-white, the striæ less numerous, finer and a paler brown than in the other forms.

**Colours of soft parts** as in the other forms.

**Measurements.** Wing 115 to 123 mm.; tail 91 to 103 mm.; tarsus 11 to 12 mm.; culmen 7 to 8 mm.

**Distribution.** Western Europe; North-Eastern Africa and Western Asia to Turkestan and Baluchistan. In India it only occurs as a rare straggler in North-West India, into Gilgit, Kashmir and Nepal. Ticehurst also records one specimen from Sind.

I cannot separate *Hirundo d. scullii* from this race.

**Nidification.** Similar to that of other Swallows of this species. Witherby gives the average of 61 eggs as 20·0 × 14·3 mm.

Whistler found this race breeding in the Kangra Valley near the Bhuban Pass; three nests were built under ledges of rock. On the 31st May one contained four white eggs just hatching, one contained a fully-fledged young Swift and the third was just ready for eggs.

**Habits.** Those of the species.

## (1164) Hirundo daurica hyperythra.

THE CEYLON STRIATED SWALLOW.

*Hirundo hyperythra* Layard, Blyth, J. A. S. B., xviii, p. 814 (1849) (Ceylon); Blanf. & Oates, ii, p. 284.

**Vernacular names.** *Wêhilihiniya* (Cing.); *Tam-padi, adaikalan-kuruvi*; *talai-illatha-kuruvi* (Tamil).

**Description.** Differs from all other races in having the whole of the lower parts deep chestnut and the rump a much darker chestnut also; the striations below are faint and narrow and there are none on the rump; the chestnut collar is absent or ill-defined.

**Colours of soft parts.** "Iris sepia-brown; bill blackish-brown; legs and feet vinous-brown" (*Wait*).

**Measurements.** Wing 102 to 122 mm.; tail 75 to 78 mm.; tarsus about 12 to 13 mm.; culmen about 7 mm.

**Distribution.** Ceylon only.

It is with some diffidence I have retained this Swallow as a subspecies of *daurica* as there is a considerable gap in colour between the darkest specimens of *H. d. daurica* and the chestnut underparts of this bird. On the other hand, we have an analogous case of white to chestnut underparts in *Hirundo rustica* and its various geographical races. It would appear to be one of those instances in which isolation has developed acquired characteristics to such an advanced stage that differences, at first merely sub-specific, have attained specific value.

**Nidification.** Wait describes the nest as "a solid retort-shaped structure of mud, glued into the under surface of a verandah roof, the arch of a bridge, or culvert, or the roof of a rock cave. The interior is lined with a felted layer of feathers." The eggs are pure white and glossless. Two eggs in Mr. Wait's collection measure about 24·0 × 14·4 mm.; these are perhaps unusually large.

The breeding-season is from April to June.

**Habits.** The Ceylon Striated Swallow is resident in Ceylon up to about 3,000 feet and on the Uva plateaus up to 4,000 feet. It hawks for insects in company with other Swallows over rivers, tanks and marshes as well as round towns and villages and Wait says that it can be distinguished from the Eastern Swallow by its somewhat heavier, slower flight.

## Family MOTACILLIDÆ.

The edges of both mandibles smooth except for a small notch in the upper, close to the tip; the hinder part of the tarsus longitudinally bilaminated, the laminæ smooth and entire; the tarsus in front slightly scutellated; wing with nine primaries, the first and second nearly equal; the longest secondaries reaching nearly or quite to the tip of the wing; bill long and slender; a complete Autumn and a partial Spring moult; young similar to the adult but often more spotted below and more rufous in tint; tail of twelve feathers; rictal bristles fairly well developed; sexes alike or nearly so.

The *Motacillidæ* contains the Wagtails and Pipits, a family very widely distributed and containing a large number of species often very closely alike both in colour-pattern and structure.

The Indian species may be retained within the four genera employed by Oates in the first edition of the 'Avifauna' but many Systematic Ornithologists now further divide *Motacilla* into two genera, *Motacilla* and *Budytes*, which differ in the shape of the hinder claw and the comparative length of wing and tail.

*Key to Genera.*

A. Upper plumage neither streaked nor mottled but plain.
  *a.* Middle tail-feathers not shorter than the others ..... MOTACILLA, p. 254.
  *b.* Middle tail-feathers shorter than the others ..... DENDRONANTHUS, [p. 275.
B. Upper plumage streaked or mottled.
  *c.* Tips of tail-feathers normal and rounded. ANTHUS, p. 277.
  *d.* Tips of tail-feathers sharply pointed .. OREOCORYS, p. 299.

### Genus **MOTACILLA.**

*Motacilla* Linn., Syst. Nat., 10th ed. i, p. 184 (1758).

Type, *Motacilla alba* Linn.

The genus *Motacilla* contains the true Wagtails, found over the whole of the Old World.

In *Motacilla* the plumage is plain, being devoid of all streaks, mottlings or spots on the upper surface; the sexes are practically alike but the difference between the Summer and Winter plumage in most of the species is very great. The Pied Wagtails are constantly undergoing a change of colour and it is hardly possible to find two birds at the same date in the same state of plumage. This makes it very difficult to describe them for identification. The Yellow Wagtails do not undergo such

complete changes as the Pied but their similarity to one another is so great in Winter and in immature plumage that their recognition is even more difficult.

A very excellent little paper by Ticehurst, which appeared in the Bombay Natural History Journal (vol. xxx, pp. 1082–1090, 1922), will be found of great assistance in discriminating between the various races, though space forbids their being dealt with in a similar manner in the present volumes.

The Wagtails have the wing and tail about equal in length or the tail decidedly shorter and have been often divided into two genera, *Motacilla* and *Budytes*, the former including the long-tailed Pied group and the latter the shorter-tailed Yellow group. To me there does not seem any necessity to make this division and , therefore, retain all the Wagtails in *Motacilla*.

*Key to Species.*

A. Hind claw much curved and shorter than hind toe.
  *a*. Plumage black, white and grey.
    *a'*. Back never black in Summer ..... *M. alba*, p. 255.
    *b'*. Back black in Summer ..... *M. lugubris*, p. 261.
  *b*. Plumage largely green and yellow ..... *M. cinerea*, p. 265.
B. Hind claw little curved and much longer than hind toe.
  *c*. Supercilium and forehead never both yellow.
    *c'*. Crown never black, a supercilium always present ..... *M. flava*, p. 267.
    *d'*. Crown always black, or black with greenish fringes, supercilium not present ..... *M. feldegg*, p. 271.
  *d*. Both forehead and supercilium bright yellow. *M. citreola*, p. 273.

## Motacilla alba.

*Key to Subspecies.*

A. No black streak through eye.
  *a*. Chin black.
    *a'* Sides of head all white.
      *a''*. Darker above ..... *M. a. alba*, p. 256.
      *b''*. Paler above ..... *M. a. dukhunensis*, p. 257.
    *b'*. Sides of head mixed black and white ..... *M. a. persica*, p. 258.
    *c'*. Sides of head all black..... *M. a. personata*, p. 259.
  *b*. Chin white ..... ..... *M. a. baicalensis*, p. 260.
B. A black streak running through the eye. *M. a. ocularis*, p. 261.

Hitherto the Pied Wagtail, *M. lugubris*, has generally been accepted as a race of *M. alba* but Messrs. Lowe and Kinnear when working on the series of these two species in the British Museum came to the conclusion that there are two distinct groups of Wagtail, one the *M. alba* group, never acquiring black backs in

the breeding-season, and the other, the *M. lugubris* group, which always acquires them. Each species contains geographical races and the division, as suggested by these two gentlemen, seems a natural one and, moreover, it accounts for seeming discrepancies in the overlapping of the breeding area of the two species and their subspecies.

*Motacilla alba ocularis* is also very doubtfully a subspecies of *M. alba* and its range in the breeding-season seems to overlap that of *baicalensis*. It is probable that when we learn more about it, it will have to be raised to the status of a full species. Again, the exact degree of relationship between *M. l. aboides* and *M. l. leucopsis* is very doubtful and some very careful collecting will have to be done during the breeding-season in Tibet before the question can be finally settled.

## (1165) **Motacilla alba alba.**

THE WHITE WAGTAIL.

*Motacilla alba* Linn., Syst. Nat., 10th ed., p. 185 (1758) (Sweden); Blanf. & Oates, ii, p. 287 (part).

**Vernacular names.** *Dhobini* (Hind.).

**Description.** Differs from the next race, which is the common form in India, in having a decidedly darker upper plumage.

**Colours of soft parts** and **Measurements** as in the next bird.

**Distribution.** The greater part of Europe, wintering in Africa. Judging from the series in the British Museum, this is a very rare straggler into North-West India, though there are individuals from the North-West Provinces and the Punjab referable to this race. Of seven specimens collected by Whistler in Jhelum, Ticehurst identifies five as being true *alba*.

**Nidification.** The White Wagtail breeds from the end of April to early July, often rearing two broods in the season. The nest varies considerably according to site; when placed in a small hole in a wall, building or tree it often consists merely of a plentiful lining of fine grass, feathers, fur, wool or other soft material but when placed in a bank, sandhill or large hole of a tree or in ivy, gorse or a thick bush, it is a bulky affair of sticks, moss, roots, leaves and grass lined with the softer materials already mentioned. The eggs number four to six and are white with numerous small freckles and small spots of reddish-brown. As a rule these markings are numerous everywhere but sometimes are more so in a ring or cap at the larger end. One hundred eggs (*Rey & Jourdain*) average 20·43 × 15·11 mm.: maxima **22·1** × 15·0 and 20·0 × **16·2** mm.; minima **18·0** × 15·0 and 21·0 × **14·4** mm.

**Habits** similar to those of the next bird.

## (1166) Motacilla alba dukhunensis.

THE INDIAN WHITE WAGTAIL.

*Motacilla dukhunensis* Sykes, P. Z. S., 1832, p. 91 (Deccan).
*Motacilla alba.* Blanf. & Oates, ii, p. 287 (part).

**Vernacular names.** *Dhobini* (Hind.).

**Description.—Summer plumage.** Forehead, fore crown, sides of head and neck pure white; remainder of crown, nape, hind neck, chin, throat and upper breast black, the latter sharply defined from the white of the remaining underparts; back, scapulars, rump and lesser wing-coverts grey; upper tail-coverts nearly black, edged with white; tail black, the two outermost pairs of

Figs. 52, 53, 54.—Wing, foot and head of *M. a. dukhunensis.*

rectrices white, with a broad line of black on the edges of the basal halves of the inner webs; wing-coverts and quills blackish-brown; the primaries and outer secondaries narrowly, the other feathers broadly, edged with white.

**Colours of soft parts.** Iris brown; bill black, more leaden on the lower mandible; legs and feet dark horny-brown to black.

**Measurements.** Total length about 220 mm.; wing 88 to 94 mm.; tail 90 to 98 mm.; tarsus 23 to 24 mm.; culmen about 11 to 12 mm.

**In Winter.** Forehead, chin and throat white, sometimes faintly tinged with yellowish.

**Female in Summer** like the male but usually with some dark

mottling on the forehead; the chin and hind neck are often marked with grey.

**Female in Winter.** No black on head, which is grey like the back; the white forehead is narrower and tinged with grey and the black on the breast is more restricted and the feathers fringed with white.

**Young birds** have the upper parts grey tinged with buff; the forehead and sides of crown darker; lores, feathers round the eye and sides of the head buffish-white, mottled with grey-brown; breast-band narrower than in the adult and more broken with white.

**Distribution.** Breeding in Western Siberia to the Yenesei and Atlas; West to the Caucasus and North Turkestan. In Winter South to Afghanistan, Baluchistan, Persia and the greater part of India, East to Bengal and Upper Assam. Wait has recently obtained specimens in Ceylon, where it was previously unknown.

**Nidification.** The nests and eggs are said not to be distinguishable from those of the Common White Wagtail. They apparently breed in May and June but there is very little on record which can be definitely attributed to this race. Eggs taken by Smirnoff in the Yenesei district in early June measure $22{\cdot}3 \times 16{\cdot}0$ mm.

**Habits.** The Indian form of the White Wagtail is as confiding in its ways as is its European cousin: haunting towns, villages and gardens, it may be found pursuing its insect prey across lawns and open spaces, running with great speed and often fluttering into the air when some active titbit takes to wing. All the time its tail wags at regular intervals and even when seated and otherwise motionless, it cannot refrain from a quick flick every now and then. Its graceful, dipping flight is capable of some speed and its cheerful chirrup is uttered both on the wing and when at rest. They arrive early in India, many birds arriving in the second and third week of July, whilst few leave until the end of April.

## (1167) **Motacilla alba persica.**

THE PERSIAN WHITE WAGTAIL.

*Motacilla personata persica* Blanf., Eastern Persia, ii, p. 232 (Persian Highlands).

**Vernacular names.** None recorded.

**Description.** Intermediate between *M. a. dukhunensis* and *M. a. personata*, the adults always having a trace of white on the ear-coverts but the chin and throat wholly black. This difference appears to be quite constant in their breeding area.

**Colours of soft parts** as in the Indian White Wagtail.

**Measurements.** Wing 87 to 95 mm.; culmen 12 to 13 mm.

**Distribution.** Breeding in the Persian Plateau and mountains, Kerman, Sheraz, Isfahan etc. Some Indian specimens from North-West India seem referable to this race, but young and non-breeding birds are very difficult to differentiate from *M. a. personata* or *M. a. dukhunensis*.

**Nidification.** The Persian White Wagtail breeds in April, May and June, sometimes having second broods as late as July. The nests are bulky affairs of grass, roots, leaves etc., well lined with goats' hair, wool or fur; outwardly they conform in shape to the hole in which they are placed. A favourite site is a hole in an old ruin, deserted building or broken-down wall but, round about Kerman, Currie found them breeding in subterranean water-courses. Holes in the brick or stone lining of wells are often used for nesting purposes. A fine series of eggs collected by Currie and Petherick in Persia could not be distinguished from those of *M. a. alba* but appears darker and more reddish. Fifty eggs average 20·3 × 15·1 mm.: maxima **21·7** × 15·8 and 20·9 × **16·3** mm.; minima **18·9** × 15·5 and 19·8 × **15·0** mm.

**Habits.** Those of the species. Like all the White Wagtails they are extremely tame little birds and are as much at home in gardens as they are running about at the edges of streams and water-courses. Like the Common Wagtail they are said sometimes to submerge their whole bodies under water when hunting for water insects etc.

## (1168) Motacilla alba personata.

THE MASKED WAGTAIL.

*Motacilla personata*, Gould, B. of Asia, vi, pl. 63 (1861) (India); Blanf. & Oates, ii, p. 290.

**Vernacular names.** *Kol-sundak* (Turki); *Dhobin*, *Dhobini* (Hind.).

**Description.** Similar to the Indian White Wagtail but in adults the ear-coverts, sides of the head and neck are black; in younger birds and in Winter these parts are somewhat mottled with white but are never pure white as in *M. a. dukhunensis*. In quite young birds they are grey or grey-brown. The white on the wing-coverts and inner secondaries is also more extensive in the present race and very often there is less black on the outermost tail-feathers.

**Colours of soft parts** as in the Indian White Wagtail.

**Measurements.** Wing 87 to 99 mm.; tail 91 to 103 mm.; tarsus 23 to 25 mm.; culmen 12 to 13 mm.

**Distribution.** Breeds from Turkestan to South-West of Lake

Baikal; South to Afghanistan, Gilgit, Kashmir, Ladakh and the extreme North-West Frontier of India.

**Nidification.** In Central West Asia the Masked Wagtail breeds principally in April and May but on our own Frontier Whitehead took fresh eggs on the 15th June at Bulta-khundi in the Khagan Valley. In this and the Kurram Valley it breeds freely from 2,550 feet up to 10,000 feet and Fulton obtained it up to 12,000 feet. Ward records it as breeding commonly in Kashmir between 6,000 and 8,000 feet but I have never seen any eggs from that State. The eggs, four to six in number, are like those of the other races. Thirty eggs average 20·2 × 15·0 mm.: maxima **21·2** × 15·5 and 20·2 × **16·1**; minima **19·3** × **14·1** mm.

**Habits.** During the breeding-season the Masked Wagtail seems to be more exclusively a bird of forest-streams and water-courses than most of its allies but, otherwise, it behaves, feeds, calls and sings much as they do, whilst in the non-breeding season it becomes almost as much a town and village haunter as the tamest of them. It arrives in the foot-hills and plains of the Frontier Provinces in the end of August and early September and leaves again in early May. During the intervening months it spreads over the whole of India, East to Assam, West to Sind and South to Travancore.

## (1169) **Motacilla alba baicalensis.**

SWINHOE'S WHITE WAGTAIL.

*Motacilla baicalensis* Swinhoe, P. Z. S., 1871, p. 363 (? Eastern Asia).

**Vernacular names.** *Dhobini* (Hind.).

**Description.** Similar to the Masked Wagtail but adult birds in full Summer plumage always retain the white chin and have the crown white as far back as the back of the eye or further; the outermost tail-feather is pure white in a few specimens.

**Colours of soft parts** as in *M. a. personata*.

**Measurements.** Wing 90 to 97 mm.; tail 91 to 95 mm.; tarsus 23 to 24 mm.; culmen 12 to 13 mm.

**Distribution.** Breeding in East Siberia, from Lake Baikal to E. Manchuria; Wintering in South China to Yunnan and the Shan States. A typical specimen was also procured in Tibet at Khamba-jong by Walton and I have a record of a specimen obtained at Asalu, N. Cachar, in 1899.

**Nidification.** Nests and eggs taken by Smirnoff during May and June in Eastern Siberia and Manchuria are just like those of the European Wagtail. The eggs measure about 21·2 × 15·3 mm.

**Habits.** Those of the species.

## (1170) Motacilla alba ocularis.

THE STREAK-EYED WAGTAIL.

*Motacilla ocularis* Swinhoe, Ibis, 1860, p. 55 (Amoy); Blanf. & Oates, ii, p. 289.

**Vernacular names.** *Dhobin*, *Dhobini* (Hind.).

**Description.** Sex for sex and according to age similar to the Indian White Wagtail but distinguished by a streak running through the eye from forehead to the black nape. In adults this streak is black and complete, in young birds browner and broken but traces are always present, especially in front of the eye; the white on the wing-coverts and inner secondaries is greater in extent and in some old males the black of the head is produced further back into the hind neck.

**Colours of soft parts.** Iris brown; bill black, paler and more plumbeous at the base and on the lower mandible; legs and feet black.

**Measurements.** Wing 86 to 97 mm.; tail 87 to 100 mm.; tarsus 24 to 25 mm.; culmen 11 to 12 mm.

**Distribution.** Breeding in North-East Siberia and extreme North-West America; West to Dauria, Amurland, Eastern Mongolia and Manchuria. In Winter South to South China, Formosa, the Indo-Chinese countries, Burma, Assam and Eastern Bengal. It has been found as far East as Nepal but does not appear to extend far South in India, though it occurs in the extreme South of Burma.

**Nidification.** Breeds during May and June, sometimes having a second brood as late as August. Nest and eggs are just like those of the European Wagtail but the latter are smaller. Ten in my own collection measure only 19·2 × 14·7 mm.; one taken by Przevalski in the Koku Nur measured 21·2 × 15·6 mm.

**Habits.** This is the most common White Wagtail in Assam during the Winter months, arriving in early August and leaving again in the end of April. At this time it is just the same familiar bird as are the other races but when breeding it is said to keep more to forest, open country and meadow-land not in the vicinity of human habitations.

## Motacilla lugubris.

*Motacilla lugubris* Temm., Man. d'Orn., i, p. 253 (1820).

Type-locality: France.

In *M. l. lugubris* the ear-coverts are white and the throat black, a combination found in none of the Indian races.

*Key to Subspecies.*

A. Chin black in Summer.
  *a.* Forehead and anterior crown white .... *M. l. alboides*, p. 262.
  *b.* Only a narrow line across forehead and supercilium white ..... *M. l. maderaspatensis*, [p. 263.
B. Chin and throat white in Summer..... .. *M. l. leucopsis*, p. 264.

## (1171) Motacilla lugubris alboides.

HODGSON'S PIED WAGTAIL.

*Motacilla alboides* Hodgs., As. Res., xix, p. 191 (1836) (Nepal).
*Motacilla hodgsoni.* Blanf. & Oates, ii, p. 291.

**Vernacular names.** *Dhobin, Dhobini* (Hind.).

**Description.** Forehead, anterior crown, lores, cheeks, a ring round the eye and a patch behind white; upper plumage, scapulars and lesser wing-coverts black; tail black, the outermost pair of feathers pure white and the next pair white with a brown edge to the basal half of the inner web; chin, throat and breast black; remaining underparts pure white.

**Colours of soft parts.** Iris brown; bill and feet black.

**Measurements.** Wing 87 to 96 mm.; tail 84 to 93 mm.; tarsus 23 to 24 mm.; culmen about 13 to 14 mm.

**In Winter** the black feathers of the mantle are fringed with grey and the chin and throat become white or marked with white.

**The Young** have the upper parts olive ashy-grey and the underparts are white with a small patch of black in the centre of the breast.

**Distribution.** Breeding in the Himalayas from Gilgit to Sikkim and South-West Tibet. In Winter is found throughout the plains and lower hills of Assam and the hilly regions of North and Central Burma to Tenasserim. West it is found not uncommonly in Bengal and Bihar and struggles into the Central Provinces. This bird and *M. l. leucopsis* meet in Tibet and apparently breed within a very short distance of one another. It may be that they will eventually have to be treated as full species.

**Nidification.** Hodgson's Wagtail breeds throughout the Himalayas from about 6,000 feet up to 12,000 feet or higher during May, June and July, often having two broods in the year. The favourite site for the nest is undoubtedly some hole in among boulders or small islands in rivers but it also breeds in river-banks, in stone walls or under a stone on the ground. Occasionally it will build in a deserted hut or building and even more rarely in an inhabited one, but normally it is not a frequenter of human habitations for nesting purposes. The nest is like that of all White Wagtails but in Kashmir is often made wholly of wool.

The eggs number four to six and are like those of *M. a. alba* but are more often of a brown or reddish tint. Eighty eggs average 21·3×15·5 mm.: maxima **22·5**×16·0 and 22·0×**16·5** mm.: minima **19·3**×14·6 and 21·2×**14·2** mm.

**Habits.** In Summer a frequenter of streams and rivers running through well-wooded and open country as well as forest. They seem to feed much on water-*haunting* insects as well as on actual water-insects, which latter they pursue through both shallow and deep water. At the same time they are not so aquatic in their ways as are the Grey and the Yellow Wagtails.

## (1172) Motacilla lugubris maderaspatensis.

The Large Pied Wagtail.

*Motacilla maderaspatensis* Gmelin, S. N., i, p. 961 (1789) (India); Blanf. & Oates, ii, p. 291.

**Vernacular names.** *Mamula*, *Bhuin Mamula*, *Khanjan* (Hind.); *Sakalu sarela-gadu* (Tel.).

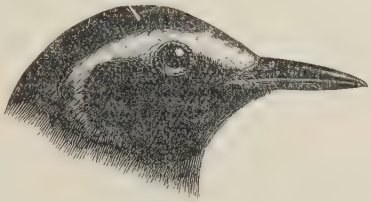


Fig. 55.—Head of *M. l. maderaspatensis.*

**Description.** A very narrow line across the forehead and a broad supercilium white; whole head, upper plumage, chin, throat, breast, sides of neck and lesser and median wing-coverts black; tail black, the outermost pair of feathers broadly, and the next pair narrowly, edged with white on the inner webs on the basal portions; greater wing-coverts black at the base, white elsewhere; quills black, the primaries edged narrowly with white, the outer secondaries broadly edged with white and all with a large patch of white on the base of the inner webs; remaining under plumage white.

**Colours of soft parts.** Iris brown; bill and legs black.

**Measurements.** Total length about 240 mm.; wing 97 to 103 mm.; tail 95 to 105 mm.: tarsus 25 to 26 mm.; culmen about 14 to 15 mm.

**Females,** possibly only when young, have the black upper parts somewhat duller.

**Young birds** have the black upper parts, chin, throat and breast replaced by earthy-brown; the white supercilium is absent

or smaller and is a fulvous-white the white of the lower parts is also tinged with fulvous.

**Distribution.** The whole of India from the Himalayas to Ceylon. East it extends to Western Bengal and Orissa, but not to Eastern Bengal or Assam.

**Nidification.** The Large Pied Wagtail breeds almost throughout India, ascending the highest hills in the South and wandering some 2,000 feet into the Himalayas, occasionally 4,000 feet higher. The principal breeding months are March, April and May but many birds have a second brood in July, August and September. The nest may be placed in a hole almost anywhere as long as it is near water; holes in banks, walls, buildings, both occupied and empty, bridges, culverts etc. are commonly used but the most popular resort is an old boat, whether a portion of a bridge of boats, a constantly-used ferry or some derelict past all duty. The nest is well and strongly made, mainly of grass and roots but, often, of all kinds of odd materials, whilst the lining is always of wool, hair or fur of some kind. The eggs generally number four, frequently three only and, very rarely, five. They are just like those of the Common White Wagtail but duller and darker on an average, more often brown or reddish than are the eggs of that bird. They are said sometimes to make a very flimsy pretence at a nest and even occasionally to lay in a hole with no nest at all. One hundred eggs average 21·9 × 16·2 mm.: maxima **23·9** × 16·5 and 23·1 × **17·3** mm.; minima **20·4** × 15·9 and 22·3 × **15·1** mm.

**Habits.** In all their ways these birds are typical White Wagtails of the most confiding, humanity-loving type. True, where they are unusually numerous some birds will be seen far from towns and villages on the banks of rivers or on sandy islands but for the most part they are essentially birds which haunt civilization. Every big garden has its one or more pairs and, when not actually on the rivers, they run about the lawns and paths just as our Wagtails do at home.

## (1173) **Motacilla lugubris leucopsis.**

THE WHITE-FACED WAGTAIL.

*Motacilla leucopsis* Gould, P.Z.S., 1837, p. 78 (India); Blanf. & Oates, ii, p. 288.

**Vernacular names.** *Dhobin* (Hind.); *Tangzhenfleu* (Lepcha).

**Description.** Differs from Hodgson's Wagtail in having the ear-coverts, sides of the head and neck, chin and throat pure white.

**Colours of soft parts** as in Hodgson's Wagtail.

**Measurements.** Wing 87 to 93 mm.; tail 83 to 90 mm.; tarsus 22 to 24 mm.; culmen about 12 to 13 mm.

**Distribution.** Amur, Manchuria, Mongolia, Northern China to Tibet. In Winter South to South China, Formosa, Burma, Assam and Eastern Bengal and to Nepal.

**Nidification.** Over the greater part of its breeding area the White-faced Wagtail breeds in May and June. La Touche found it breeding in these months both near Foochow and near Fokhien between 1,000 and 4,000 feet and eggs have also been taken in Amur during these same months. On the other hand Hopwood obtained a nest in the Upper Chindwin in March and I have had eggs sent me with skins of this bird from Tibet taken from the 30th May to the end of July. Nests and eggs only differ from those of the previous bird in being smaller and, like them, are placed, more often than not, in holes in buildings, whilst nests taken by La Touche were built in the roofs, either under the tiles or in among the thatch. Twenty-five eggs average 20·7 × 15·4 mm.: maxima **21·6** × 16·0 and 21·0 × **16·1** mm.; minima **20·0** × 15·0 and 20·7 × **14·2** mm.

**Habits.** Normally this bird seems to be one of low elevations from the Plains to some 4,000 feet. In Tibet, however, the birds sent me were trapped at 12,000 to 14,000 feet, though it is possible that their occurrence and breeding in Tibet is only accidental. The Everest Expedition obtained it at 17,500 feet in September on its Southern migration.

## Motacilla cinerea.

*Motacilla cinerea* Tunstall, Orn. Brit., p. 2 (1771).

Type-locality: Sweden.

The form which breeds in Northern Asia and visits India in Winter is distinguished by its shorter tail, under 75 mm. as against over 75 mm. in the typical form.

## (1174) Motacilla cinerea caspica.

The Eastern Grey Wagtail.

*Parus caspicus* Gmelin, Reise Russ., iii, p. 104, pl. xx, fig. 2 (1774) (Caspian Sea).
*Motacilla melanope.* Blanf. & Oates, ii, p. 293.

**Vernacular names.** *Mudi-tippudu-jitta* (Tel.).

**Description.—Male in Summer.** Forehead to lower back, scapulars and lesser wing-coverts slaty-grey, tinged faintly with olive; rump and upper tail-coverts greenish-yellow; three middle pairs of tail-feathers black, the next two pairs white with black outer webs and a black edge to the inner web, outermost pair all white with black shafts; lores dark grey-brown; cheeks and ear-coverts dark grey; a broad white supercilium to the nape and a broad white moustachial stripe; median, greater coverts and quills

dark brown edged with yellowish-white; the inner secondaries white at the base, this generally showing as a white wing-patch; chin, throat and upper breast black, showing narrow white fringes when freshly moulted; lower plumage bright yellow, brightest on the vent and under tail-coverts; axillaries and under wing-coverts grey and white.

**Colours of soft parts.** Iris brown; bill horny-brown to almost black, but always a little paler at the base; legs and feet fleshy-grey to fleshy-horny.

**Measurements.** Total length about 200 mm.; wing 78 to 86 mm.; tail 67 to 73 mm.; tarsus 23 to 24 mm.; culmen about 11 to 12 mm.

**Female in Summer.** Superciliary and moustachial stripes less pure white and smaller; the black of the chin, throat and breast is much mottled with white and the lower parts, especially the breast, are less bright and pure yellow.

**Male in Winter** has the superciliary and moustachial stripes less in extent; the chin, throat and upper breast are white tinged with buff, especially on the breast; the lower breast is buffy-yellow.

**Young birds** are like the adult but have the rump and upper tail-coverts duller and tinged with buff; chin, throat and breast buff, darkest on the breast.

**Nestling.** Down golden-buff (Witherby, *M. c. cinerea*).

**Distribution.** Breeding from the Urals to Kamschatka and South to the Safed Koh and the Himalayas. In Winter the whole of India and Ceylon, Burma, Assam, Andamans, Malay Peninsula.

**Nidification.** The Eastern Grey Wagtail breeds from the end of April to the end of July from 5,000 up to 10,000 or 12,000 feet, most often between 7,000 and 9,000 feet. The nest is made of grass or grass and roots, sometimes much mixed with white wool and sometimes wholly of this material. The lining is of hair or wool or the two mixed. It is often placed, like that of Hodgson's Pied Wagtail, under a stone or fallen tree-trunk in small islands in rivers but it also makes use of banks of rivers and sometimes it builds the nest in long grass or under a thick bush. The eggs number four to six and are much more uniform in appearance than the eggs of the White and Pied Wagtails. The ground-colour varies from pale to warm yellowish-grey, often with greenish, rarely with a reddish tinge. The markings consist of freckles of pale reddish-brown, scattered over the whole surface or in a ring or cap at the larger end. One hundred eggs average 19·0 × 14·2 mm.: maxima **20·6** × 13·7 and 18·5 × **15·8** mm.; minima **17·0** × 13·0 and 17·1 × **12·9** mm. In India the full clutch is four or five but in the North they lay six or even seven eggs.

**Habits.** This Wagtail is in habits half-way between the White Wagtails and the more strictly marsh and wet meadow-land

Wagtails of the *flava* and *feldegg* groups. They haunt both rivers and open country and are also sometimes found on streams running through forest and jungle. They are very tame and confiding and in Winter many frequent towns and villages. In food, flight etc. they resemble the White Wagtails but their call softer and sweeter and easily recognizable.

## Motacilla flava.

*Motacilla flava* Linn., Syst. Nat., 10th ed. i, p. 185 (1758).

Type-locality: South Sweden.

Three forms of this Wagtail are found in India during the Winter but *M. f. beema*, the form which is nearest to true *M. f. flava*, differs from that bird in having a paler grey crown and ear-coverts

Fig. 56.—Foot of *M. f. beema*.

*Key to Subspecies.*

| | |
|---|---|
| A. Crown pale grey; ear-coverts and cheeks with much pale yellow and white .... | *M. f. beema*, p. 267, æstiv. |
| B. Crown pale greenish-grey; ear-coverts and cheeks with much white ..... | *M. f. beema*, p. 268, hiem. |
| C. Crown darker at all seasons; ear-coverts and cheeks very dark ..... | *M. f. thunbergi*, p. 269. |
| D. Crown green or green-grey; ear-coverts blackish ..... | *M. f. taivana*, p. 270. |
| E. Whole crown white ..... | *M. f. leucocephala*, p. 270. |

### (1175) Motacilla flava beema.

The Indian Blue-headed Wagtail.

*Motacilla beema* Sykes, P. Z. S., 1832, p. 90 (Deccan); Blanf. & Oates, ii, p. 296.
*Motacilla flava*. Blanf. & Oates, ii, p. 295.

**Vernacular names.** *Pilkya* (Hind.).

**Description.—Adult male, Summer.** A broad supercilium to the nape white; forehead, crown and nape light bluish-grey back, scapulars, lesser wing-coverts, rump and upper tail-coverts

bright olive-green, the longer coverts with black centres; tail black with narrow yellowish edges, the two outer pairs white with brown edges to the inner webs; lores dark grey; upper cheeks, ear-coverts and sides of neck blue-grey; lower cheeks and ear-coverts, chin and throat white; remainder of lower plumage bright yellow with black bases, which show through here and there as the plumage gets abraded; median wing-coverts brown with broad pale yellow tips and margins; greater coverts dark brown with pale yellow edges and darker yellow tips; primaries and outer secondaries brown with very narrow yellow edges to the outer webs; inner secondaries with broad pale yellow edges to both webs; axillaries and under wing-coverts yellow.

**Colours of soft parts.** Iris brown; bill almost black, the base of the lower mandible yellowish; legs and feet dark brown or dark horny.

**Measurements.** Wing 77 to 83 mm.; tail 67 to 73 mm.; tarsus 23 to 24 mm.; culmen about 11 to 12 mm.

**In Winter** the grey of the head is obscured by greenish margins to the feathers; the lower parts are much duller and the margins to the wing-feathers are pale fulvous, not yellow; the breast is often mottled with dull black; the supercilium is less distinct.

**Female in Summer** like the male but duller; the head is more greenish and the lower surface much less bright.

**Female in Winter** resembles the male but is duller.

**Young birds** are brown above tinged with olive on the rump and upper tail-coverts; below from chin to vent they are white, often tinged with bright yellow here and there and much mottled with blackish-brown on the fore-neck and upper breast; vent and under tail-coverts pale yellow; axillaries and under wing-coverts white; the breast in some specimens is strongly suffused with buff, probably in the youngest specimens only.

**Nestling.** Buff when in down.

**Distribution.** Breeding in West Siberia to the Yenesei and (*fide* Sushkin) in extreme South-East Russia and in Ladakh, Kashmir and Tibet. In Winter it extends as far South as Travancore and Mysore and it ranges from Sind on the West to Eastern Bengal and also West Assam, where I obtained specimens, and to East Assam, where Stevens and Coltart obtained it. There are also several specimens from this Province in the British Museum collection.

**Nidification.** Ward obtained nests and eggs of this Wagtail in Ladakh in June and records it as also occasionally breeding in Kashmir. It is common in Tibet, though very local and, apparently, irregular in its visits. It breeds in Tibet in June and July, making a very compact little nest of grass and roots, often mixed with fur, wool, hair or feathers and always beautifully lined with a mat of these materials. It is generally built in marshy grassland,

placed well down among the roots of the grass and carefully concealed. The eggs number four or five and are like those of the last bird rather than those of the White and Pied Wagtails. Thirty eggs average 19·5 × 14·8 mm.: maxima **20·7** × 15·0 and 20·6 × **15·6** mm.; minima **18·2** × 15·0 and 19·1 × **14·1** mm.

**Habits.** This is an extremely common bird in Northern India in Winter, a few birds arriving in August but the majority in September. They leave again in April and early May, scattering in the meantime over the greater part of the Empire. When migrating they often collect in very large numbers but break up into pairs or fly singly immediately after arrival. Their habits and flight, diet, voice etc. call for no remark.

## (1176) **Motacilla flava thunbergi.**

THE GREY-HEADED WAGTAIL.

*Motacilla thunbergi* Billberg, Syn. Faun. Scan., p. 50 (1828) (Lapland).
*Motacilla borealis.* Blanf. & Oates, ii, p. 294.

**Vernacular names.** *Pilkya* (Hind.).

**Description.—Male.** Distinguishable from the preceding race at all seasons by its much darker cheeks and ear-coverts; the throat is always yellow and not white and even the chin is often yellow also; in summer the crown and nape are a much darker grey and in Winter the general tint is darker in this race than it is in *M. f. beema*.

**Colours of soft parts** as in the Indian Blue-headed Wagtail.

**Measurements.** Wing 78 to 83 mm.; tail 72 to 75 mm.; culmen 11 to 12 mm.

**Female** and **Young** are generally distinguishable by their dark cheeks and ear-coverts.

**Distribution.** Breeds in Scandinavia, North Russia and Western Siberia but how far East and where it is replaced by *M. f. beema* seems still rather doubtful. In Winter it migrates to North Africa and Western Asia; commonly as far South as the United Provinces, and thence in decreasing numbers to Ceylon, where it is very numerous; East it extends to Bengal, Assam and the greater part of Burma to Tenasserim.

**Nidification.** The Grey-headed Wagtail breeds during May and June in tundras and marshy lands, making a nest of grass and roots lined with wool or hair, which it places among the roots of reeds or rank grass. The nest is very well made and neat and is nearly always well hidden. The eggs, four to six in number, are like those of *M. f. beema*, seldom conspicuously spotted and often looking an almost uniform pale greenish-stone colour. One hundred eggs average 18·3 × 13·9 mm. (*Witherby*).

**Habits.** Those of the species. A sprightly, cheerful little bird, always on the move, racing and fluttering after its insect prey;

following cattle about in order to catch the insects they disturb and keeping up a constant flick of its tail. In Ceylon, Wait refers to its habit of roosting in reeds in great colonies, a habit not so conspicuous in India, though even in that country very large numbers roost in company.

## (1177) **Motacilla flava taivana.**

THE CHINESE GREEN WAGTAIL.

*Budytes taivanus* Swinh., P. Z. S. p. 334 (1863) (Formosa).

**Vernacular names.** *Pilkya* (Hind.).

**Description.—Male.** Whole upper plumage olive-green, brightest on the upper tail-coverts and rump; a broad yellow supercilium: lores and ear-coverts nearly black; lower plumage deep yellow; wings and tail as in the other races; the flanks always and the breast often washed with dull greenish.

**Colours of soft parts** as in *M. f. beema*.

**Measurements.** Wing 79 to 84 mm.; tail 65 to 74 mm.; tarsus 25 to 26 mm.; culmen about 11 to 12 mm.

**Female** distinguishable by its very dark plumage and its yellow supercilium.

**Young birds** are very dark brown above, with blackish cheeks and ear-coverts and a well-defined yellowish supercilium; the lower plumage is yellowish-white mottled with blackish-brown across the breast.

**Distribution.** Breeding, Lake Baikal and Dauria to the Amur, to Sakhalien and the Kuriles. In Winter South to China, Formosa and the Indo-Chinese countries. There are several specimens in the British Museum from Klang in Malay States, one from Burma and one from Howrah in Bengal.

**Nidification.** Similar to that of the other races. In the Amur it breeds in May and June in the wetter tundras. Twelve eggs vary in size between 18·4 × 14·0 and 19·9 × 15·2 mm.

**Habits.** Those of the species.

## (1178) **Motacilla flava leucocephala.**

THE WHITE-HEADED WAGTAIL.

*Budytes leucocephala* C. Deditius (Przevalsky), Jour. f. Orn., p. 279 (1887) (Altai).

**Vernacular names.** *Pilkya* (Hind.).

**Description.** Similar to *M. f. beema* but the adult has the whole head white, not sharply defined from but shading into the grey of the neck.

**Colours of soft parts and Measurements** as in *M. f. beema*.

**Distribution.** Breeding in Mongolia (*Sushkin*) and Manchuria

(*Smirnoff*); obtained by Przevalsky on the Irtisch River and the Southern Altai, Dzungaria.

**Nidification.** The Wagtail has been found breeding in Mongolia by Sushkin and in Manchuria by Smirnoff in May, June and July. The nest is like that of other races of this species, a compact cup of grass and roots, lined thickly and neatly with wool and placed on the ground in long grass or weeds in wet meadows near water. Nine eggs vary in size between 18·3 × 13·8 and 20·0 × 15·0 mm. They are like those of other races of *flava* but are very dark in coloration.

**Habits.** Those of the species. The only specimen so far obtained in India was shot by Whistler on the 3rd May, 1913, a male in perfect plumage.

## Motacilla feldegg.

*Key to Subspecies.*

A. Crown black. *Æstiv.*
B. Crown black, the feathers fringed with green. *Hiem.*
*a.* Chin yellow, malar stripe absent or, if present, tinged with yellow ..... *M. f. feldegg*, p. 271.
*b.* Chin and moustachial stripe pure white and distinct ..... *M. f. melanogriseus*, [p. 272.

In their non-breeding haunts these two races overlap very greatly and it is quite useless comparing series of intermediate birds obtained in these places in Winter and trying to draw any deductions from such comparison. Breeding birds show the differences between the two races sufficiently well to justify their retention. Young birds certainly cannot be differentiated and young birds are those which travel furthest and are found most often beyond their usual migration routes and winter haunts.

### (1179) Motacilla feldegg feldegg.

THE BLACK-HEADED WAGTAIL.

*Motacilla feldegg* Michahelles, Isis, 1830, p. 812 (Dalmatia).
*Motacilla feldeggi.* Blanf. & Oates, ii, p. 297.

**Vernacular names.** None recorded.

**Description.** Differs from all the other Yellow Wagtails, except *melanogriseus*, in having the whole crown, lores, ear-coverts and hind neck quite black and in having no supercilium; the under surface including the chin is yellow.

**Colours of soft parts.** Iris brown; bill horny-brown; legs and feet dark brown.

**Measurements.** Wing 81 to 86 mm.; tail 70 to 73 mm.; tarsus 24 to 25 mm.; culmen 12 to 14 mm.

**The Young** are dark grey-brown above with very dark ear-coverts and no trace of a supercilium; below they are white, more or less washed with yellow and sometimes buff on the breast.

**Distribution.** Breeds in Southern Europe from Greece Eastwards, Asia Minor and Caucasus, migrating South in Winter to North Africa and India as far South as Belgaum and as far East as Benares.

**Nidification.** Much the same as in the Wagtails of the *flava* group. The breeding-season is from April to June and the nests are placed on the ground in meadow- or marsh-land under the protection of a bush or tuft of long grass. In Bulgaria they are said to nest in cornfields. The eggs in appearance are similar to those of *M. flava* but are more often marked with a streak or hair-line at the larger end. Eighteen eggs (*Jourdain*) average 18·7 × 14·4 mm.: maxima **20·5** × 14·8 mm. and 19·3 × **15·1** mm.; minima **17·1** × **14·0** mm.

**Habits.** Similar to those of the Yellow Wagtails.

## (1180) Motacilla feldegg melanogriseus.

THE TURKESTAN BLACK-HEADED WAGTAIL.

*Budytes melanogriseus* Homeyer, Jour. f. Orn., p. 128 (1878) (India).
*Motacilla feldeggi.* Blanf. & Oates, ii, p. 297 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *M. f. feldegg* but has the chin white, produced back as a white line between the yellow throat and the black ear-coverts.

**Colours of soft parts** as in *M. f. feldegg*.

**Measurements.** Wing 79 to 83 mm.; tail 68 to 73 mm.; tarsus 24 to 25 mm.; culmen 13 to 14 mm.

**Female** and **Young** cannot be distinguished from those of the preceding race and many of our adult Indian males are quite intermediate between this and the preceding form.

**Distribution.** Breeding in Turkestan and Persia and in Winter visiting India within the same areas as the Black-headed Wagtail.

It is only within their breeding areas that one can be in any way certain of meeting either race of the Black-headed Wagtails and that race only. The Western form certainly seems to visit North-West India in some numbers, whilst, on the other hand, the Eastern form appears occasionally to wander as far South-West in Winter as Egypt.

**Nidification.** Similar to that of the preceding bird. Witherby obtained its eggs near Sheraz on the 3rd May at 5,200 feet, Negikoff took them in the Altai at about the same date and Smirnoff took Wagtails' eggs, which he attributed to this species, at Krasnoyarsk on the 7th of that month. They measure 20·0 × 14·6 mm.

**Habits.** Those of the species.

## Motacilla citreola.

*Key to Subspecies.*

A. Back never mixed with black..... *M. c. citreola*, p. 273.
B. Back black, or more or less mixed with black..... *M. c. calcarata*, p. 274.

The name *citreoloides* hitherto used for Hodgson's Yellow-headed Wagtail cannot be retained, as it is antedated by Hodgson's name *calcarata* published in 1836, or 29 years earlier than Gould's.

### (1181) Motacilla citreola citreola.

THE YELLOW-HEADED WAGTAIL.

*Motacilla citreola*, Pall., Reise Russ. Reich., iii, p. 696 (1776) (Siberia); Blanf. & Oates, ii, p. 298.

**Vernacular names.** *Pani-ka-pilkya* (Hind.).

**Description.—Summer.** Whole head and lower plumage bright yellow, the flanks washed with green; upper plumage ashy-grey more or less tinged with olive, especially the rump and upper tail-coverts; hind-neck sometimes blackish but the black never extends on to the back; tail black very narrowly edged with white, the two outer pairs white except for a broad patch of brown down the outer web; wings dark brown, the coverts and inner secondaries very broadly edged with white; the outer secondaries and primaries very narrowly edged with the same; axillaries and under wing-coverts greenish-grey.

**Female in Summer** is duller than the male; the back is less pure grey, more brownish, and there is less pure bright yellow on the forehead and sides of the head; it also wants the black collar.

**Colours of soft parts.** Iris dark brown; bill and feet black.

**Measurements.** Wing 82 to 90 mm.; tail 74 to 79 mm.; tarsus 25 to 27 mm.; culmen 13 to 14 mm.

**In Winter** both sexes have the crown grey like the back but rather greener; the forehead, a broad supercilium and the sides of the head are yellow; lores and a line through the eye dusky; ear-coverts mottled with dusky; the breast is more or less mottled with dusky owing to the black bases showing through. The female is generally duller than the male with less yellow on the sides of the head.

**The Young bird** is ashy-brown above, the forehead tinged with green; a faint supercilium, sides of head and ear-coverts dull white; a line under the eye and another from the gape blackish-brown; lower plumage fulvous-white, with a row of brown mottlings down each side of the neck and across the breast.

The adult plumage is assumed very irregularly and many birds of both sexes, especially the females, breed before they have acquired the fully adult colouring.

**Distribution.** Breeds in Eastern Russia to Turkestan, Amur and South-East Mongolia. In Winter occurs over practically the whole of India as far South as Travancore and Madras. To the East it is found as far as Chittagong, Manipur and Eastern Assam.

**Nidification.** The Yellow-headed Wagtail breeds in Northern Russia in June but in Siberia from the middle of May to the middle of July. The nest is a neat cup of grass, roots and sometimes a few leaves, scraps of moss etc., very compactly put together and well lined with reindeer hair, goats' hair, wool and sometimes a few feathers. The nests are placed on the ground in swampy meadow-land, or in wet open spaces among willows and birches. Generally they are well concealed and are always built well in among the roots of the grass or bush which protects them. The eggs number four to six, rarely seven, and in colour are pale replicas of those of the Indian Blue-headed Wagtail but are sometimes rather more distinctly speckled or spotted, though usually very uniform in colour. Eighty-two eggs (64 *Jourdain*) average 19·2 × 14·2 mm.; maxima **21·3 × 15·3** mm.; minima **18·0** × 14·0 and 19·8 × **13·8** mm.

**Habits.** Very similar to those of the *flava* group. It is a very common bird in Winter over the greater part of Northern India wherever there are marshes, moist cultivation or open green fields. Ticehurst found that some Sind birds had been feeding on small snails.

## (1182) **Motacilla citreola calcarata.**

HODGSON'S YELLOW-HEADED WAGTAIL.

*Budytes calcaratus* Hodgs., As. Res., xix, p. 198 (1836) (Nepal).
*Motacilla citreoloides.* Blanf. & Oates, ii, p. 299.

**Vernacular names.** *Pani-ka-pilkya* Hind.); *Ane-kegah*, *Ani-chepte* (Tibet); *Si-chi-pi-chi* (Lhasa).

**Description.** Similar to *M. c. citreola* but in Summer the whole back, scapulars, rump and upper tail-coverts become deep black.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 76 to 85 mm.; tail 69 to 76 mm.; tarsus 25 to 26 mm.; culmen 13 to 15 mm.

**Birds in Winter** plumage and young birds can hardly be distinguished from the last race but are generally decidedly darker above, whilst adult birds nearly always have some black on the back and scapulars.

**Distribution.** Breeds in Kashmir and Central Asia from Afghanistan and Persia to Tibet. In Winter it is found as far South as Cutch and throughout Northern India to extreme East Assam and Burma South to Pegu and Northern Tenasserim.

**Nidification.** Hodgson's Yellow-headed Wagtail breeds from 6,000 to 14,000 feet throughout the Himalayas. In Kashmir it breeds in May and June, in Ladakh and Tibet in June and July and in these two months also Harington and Whitehead found great numbers breeding in the Kurram and Khagan Valleys between 8,000 and 12,000 feet. It does not appear to have two broods in the year. The nest is made of grass, roots, plant-stems, moss and often a little wool and hair, very compactly put together and lined with a felt-like mass of wool, hair and feathers. It seems always to be built on marshy ground, often in swamps, but occasionally may be found under bushes or in tufts of shortish grass in meadow-lands near streams. It is invariably very well concealed and the bird sits until almost trodden on once the eggs are being incubated.

The eggs, which number four or five, rarely three or six, are like those of *M. c. citreola*, perhaps darker as a rule and better spotted and nearly always with one or more irregular streaky lines at the larger end. Eighty eggs average 20·7 × 15·0 mm.: maxima 22·2 × 15·4 and 20·6 × 16·0 mm.; minima 18·5 × 14·5 and 20·5 × 14·0 mm.

**Habits.** Hodgson's Yellow-headed Wagtail is the most aquatic of all the Wagtails and keeps especially to large swamps, marshes and the reedy margins of large rivers. Ticehurst comments on this in regard to the Sind birds and other authors have frequently remarked the same about the Kashmir birds. Even in breeding this Wagtail will often be found building its nest well out in the centre of swamps on small islands or in shallow reed-beds. It is as active, sprightly a little bird as any of its kind, always on the move and with the same energetic, constant little jerk of the tail. Its food consists largely of tiny water-shells and insects but it also sometimes follows cattle in wet pastures and feeds on the grasshoppers, etc. which they disturb.

## Genus **DENDRONANTHUS.**

*Dendronanthus* Blyth, Ann. Mag. Nat. Hist., xiii, p. 116 (1844).

Type, *Dendronanthus indicus* Gmelin.

The genus *Dendronanthus* contains a single species of Wagtail, distinguished by having a tail different in shape to that of any other Wagtail. The central pair of feathers are shorter than the lateral ones and are also of a different colour. The sexes are alike.

## (1183) Dendronanthus indicus.

THE FOREST WAGTAIL.

*Motacilla indica* Gmel., Syst. Nat., i, p. 962 (1789) (India).
*Limonidromus indicus.* Blanf. & Oates, ii, p. 300.

**Vernacular names.** *Uz-halla-jitta* (Tel.); *Gomarita* (Cing.).

**Description.** Upper plumage, lesser wing-coverts and central tail-feathers olive-brown; the longer tail-coverts darker blackish-brown; the three pairs of tail-feathers next the centre blackish-brown, the next pair brown with a broad wedge-shaped white tip, outermost pair white except at the base of the inner web; median and greater wing-coverts black with broad yellowish-white tips; quills dark brown, with a patch of yellowish-white on the centre of the outer webs and the second to the seventh with a second similar broad patch of yellowish-white at the base; innermost secondaries olive on the outer webs, dark brown on the

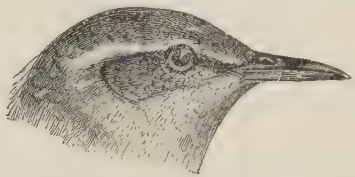


Fig. 57.—Head of *D. indicus*.

inner; a narrow supercilium from the eye to the nape yellowish-white to pure white; lores, ear-coverts and sides of neck olive; a line down either side of the throat and fore-neck brown, meeting a bold black crescentic band across the breast; a second much broken band, sometimes represented by a few black spots only, on the lower breast; remainder of lower plumage white, more or less suffused with yellow.

**Colours of soft parts.** Iris black-brown; bill horny-brown or dusky-brown above, fleshy-white below; legs and feet purplish-white to purplish-brown.

**Measurements.** Wing 77 to 81 mm.; tail 65 to 68 mm.; tarsus about 23 to 24 mm.; culmen about 13 to 14 mm.

**Young birds** appear to be more yellow below than adults, which in some cases are quite pure white.

**Distribution.** Breeding in Eastern Siberia, the hills of Northern China, Burma and Assam. In Winter South to India, West of a line drawn from the Sutlej Valley to the Gulf of Cambay, Ceylon, the Indo-Chinese countries and Burma to Singapore, Java, Sumatra and Borneo and South China.

**Nidification.** The only nests known of this Wagtail were taken in N. Cachar in May and in North-East Chihli in July. In all

four instances they were made of grass, leaves, moss, roots and a few soft fine twigs, all bound and felted together with cobwebs and with the edges neatly finished off with the same material. The lining was hair over fine roots, in N. Cachar the hair being that of the Serow and Gayal, in China that of horse and cattle. All four nests were built on horizontal branches, the two found by myself being on branches of small trees growing in among the boulders on banks of streams in dense evergreen forests. Like the nests the eggs bear no resemblance to those of Wagtails but might easily be mistaken for those of Chaffinches. The ground-colour is blue-grey to almost pale slaty-grey and the marks consist of bold spots and small blotches of black or dark red with the edges, looking as if they had run, of paler red. The markings, with a few underlying ones of grey, are dotted irregularly over the whole surface. Maxima **20·9×15·1** and **20·3×15·3** mm.; minima **19·0×14·7** mm.

**Habits.** This is almost entirely a forest bird, being found only in evergreen forest, where it haunts open glades, forest paths and riversides. Occasionally it occurs on the banks of rivers running through open but well-wooded country and Jerdon records having seen it in his own garden at Nellore. The birds are generally to be met with in pairs and when disturbed in forest roads they fly along in front of one, alighting every hundred yards or so and making little runs just like a Wagtail until, finally, they dive into the forest and return again to the open path behind the intruder. They are not shy birds and will allow a close approach, whether running about in stream or on path or perching, as they often do, on some low branch or high boulder. Their food consists of small slugs, snails, tiny worms and all kinds of insects and they pursue these latter into the air as well as snatching them off the blades of grass. Their movements are very quick and they keep up a constant wagging of their tails, but the movement is lateral, not vertical as in the true Wagtails. Their flight is fairly swift and dipping, consisting of alternate rapid beating of the wings and sailing with them semi-closed. The note is a loud chirrup, frequently repeated when flying, running or perching.

## Genus **ANTHUS.**

*Anthus* Bechstein, Naturg. Deutschl., iii, p. 704 (1807).

Type, *Anthus trivialis* Linn.

The genus *Anthus* differs from *Motacilla* and *Dendronanthus* in its comparatively much shorter tail and streaked upper plumage.

Pipits are found over nearly the entire world. They resemble each other greatly in their pattern of colour and consequently are difficult to describe; long descriptions, therefore, are useless, identification depending entirely on a few characters which are easily learnt. Each species is very constant to one type. The young are very much spotted beneath and their spots become

reduced in size at each successive Spring moult and in a few species disappear altogether. The difference in plumage in Summer and Winter is negligible, merely consisting in the black streaks and spots becoming more pronounced as the feathers become abraded towards the end of Summer.

The sexes are alike and the young resemble the adults except for the excessive spotting below.

*Key to Species.*

A. Hind claw not exceeding hind toe in length.
  *a*. Pale tip of inner web of penultimate tail-feather very small.
    *a'*. Pale tips of tail-feathers white.
      *a''*. Upper plumage brown, boldly streaked ..... *A. trivialis*, p. 278
      *b''*. Upper plumage greenish, finely streaked ..... *A. hodgsoni*, p. 281.
    *b'*. Pale tips of tail-feathers pale rufous . *A. sordidus*, p. 284.
  *b*. Pale tip of inner webs of penultimate tail-feathers large, about one-third length of feathers ..... *A. nilghiriensis*, p. 283.
B. Hind claw exceeding hind toe in length.
  *c*. Sides of body plain or with obsolete streaks only.
    *c'*. General colour of lower plumage sandy or buff.
      *c''*. Breast spotted or streaked.
        $a^3$. Upper plumage brown, the feathers with broad dark centres ..... *A. richardi*, p. 287.
        $b^3$. Upper plumage sandy with faint darker centres ..... *A. campestris*, juv., p. 293.
      *d''*. Breast unspotted and unstreaked. *A. campestris*, ad., p. 292.
    *d'*. General colour of lower plumage vinous..... *A. spinoletta*, ad., p. 296.
  *d*. Sides of body with coarse, dark streaks.
    *e'*. Axillaries and under wing-coverts yellow ..... *A. roseatus*, p. 295.
    *f'*. Axillaries and under wing-coverts whitish or brownish.
      *e''*. Throat and breast cinnamon-red.. *A. cervinus*, ad., p. 294.
      *f''*. Throat and breast whitish or fulvous.
        $c^3$. Upper plumage very dark with fulvous margins ..... *A. cervinus*, juv., p. 294.
        $d^3$. Upper plumage clear brown with olive-brown margins .... *A. spinoletta*, juv., p. 296.

## Anthus trivialis.

*Key to Subspecies.*

A. Bill much slighter and rather shorter .... *A. t. trivialis*, p. 279.
B. Bill much stouter and rather longer ..... *A. t. harringtoni*, p. 280.

## (1184) Anthus trivialis trivialis.

THE TREE-PIPIT.

*Alauda trivialis* Linn., Syst. Nat., 10th ed. i, p. 166 (1758) (Switzerland).
*Anthus trivialis.* Blanf. & Oates, ii, p. 302 (part).

**Vernacular names.** None recorded.

**Description.** Whole upper plumage sandy-brown, each feather except on the rump and upper tail-coverts with broad black central streaks; tail brown edged paler, the outermost rectrices sandy-white on the outer web and diagonally on half the inner web; penultimate outer feathers with a triangular white tip; wing-coverts black edged broadly with fulvous-white; quills dark brown narrowly edged with pale olive, the inner secondaries dark brown broadly edged with sandy-olive; an ill-defined supercilium fulvous; lores and a line behind the eye dusky; cheeks and ear-coverts fulvous, sometimes mottled with brown; a line under

Figs. 58, 59.—Head and foot of *A. t. trivialis.*

them dark brown; a line from the lower mandible down either side of the neck black; lower surface white, more or less suffused with fulvous and streaked on the breast and flanks with black.

**Colours of soft parts.** "Iris black-brown; bill, upper and tip of lower mandible dark brown, rest of lower pale flesh; legs and feet pale brownish-flesh" (*Witherby*).

**Measurements.** Wing 83 to 90 mm.; tail 54 to 64 mm.; tarsus 20 to 21 mm.; culmen 12 to 13 mm.

**Distribution.** A Winter visitor only to the North-West of India, extending South to Travancore and East to Western Bengal.

**Nidification.** Witherby gives the breeding-season as late May and early June but eggs may occasionally be found in the last week in April and again in late June. The nest is a well-built cup of coarse grasses and roots, lined with finer roots, grass and hair. Sometimes bracken, moss and other materials are mixed in the foundation of the nest. It is nearly always placed on a sloping bank and not in flat marshy meadows, as is so often the case with the Meadow-Pipit, and it is generally well concealed. The eggs number four to six and vary extremely in colour. Some

eggs are pale pink, pinkish-stone, yellowish-stone or grey in ground-colour, profusely speckled all over with red, reddish-brown, brown or grey-brown; in others the markings consist of more sparse and much bolder blotches, spots or cross lines of the same colours and in a very few the dominant tinge is green. Average of 200 eggs (174 *Witherby*) 20·09 × 15·1 mm.: maxima **23·4** × 15·4 and 23·0 × **17·2** mm.; minima **17·6** × **13·9** mm. The breeding range extends over the greater part of Europe to lat. 60° Siberia and to Palestine and the Caucasus.

**Habits.** The Tree-Pipit is found wherever there are ample open spaces mixed with well-wooded areas. In India, where it arrives in early September leaving again in March and April, it affects open country where there are trees and is especially partial to damp meadows, the vicinity of swamps etc. When disturbed feeding on the ground it invariably settles on a tree or bush, unlike some of the other Pipits, which settle on the ground.

## (1185) Anthus trivialis haringtoni.

WITHERBY'S TREE-PIPIT.

*Anthus trivialis haringtoni* Witherby, Bull. B. O. C., xxxvii, p. 43 (1917) (Khagan Valley).
*Anthus trivialis.* Blanf. & Oates, ii, p. 302 (part).

**Vernacular names.** None recorded.

**Description.** Differs from the Common Tree-Pipit in having a longer, more coarse bill and in having the underparts more profusely and more boldly striated. It is also, on an average, a decidedly darker bird and is generally more suffused with fulvous on the chin, throat and breast.

**Colours of soft parts.** Iris dark brown; bill black, the lower mandible fleshy; legs and feet flesh-colour (*C. H. T. Whitehead*).

**Measurements.** About the same as those of *A. t. trivialis* but the width of the bill at the nostrils measures 5·5 to 6 mm., as against about 5 mm. or less in that bird.

**Distribution.** A resident breeding bird from Turkestan to the North-West Frontier of India; Gilgit, Kashmir and Garhwal. In Winter straggling South into North-West India.

**Nidification.** Similar to that of *A. t. trivialis*, breeding at high elevations, between 9,000 and 12,000 feet, from the Afghan Frontier to Gilgit and the greater part of Northern Kashmir. Whitehead and Harington both found this bird breeding in some numbers in the Khagan and Kurram Valleys but *A. h. hodgsoni* also breeds in this area, so that the records are difficult to disentangle. Eggs taken by these two gentlemen cannot be distinguished from those of the European bird. Average of twenty eggs 21·0 × 15·8 mm.: maxima **22·5** × 16·5 and 22·1 × **17·0** mm.; minima **19·6** × 15·1 and 19·8 × **14·9** mm. The breeding-season seems to be in June and July, a few early birds laying in May.

**Habits.** Witherby's Pipit appears to be a local breeding form of the European Pipit and, like so many local geographical races, is more sedentary than the typical forms. It very seldom wanders into the lower hills of North-West India but there are a few skins in the British Museum which seem referable to this race. Except that it keeps to high mountainous tracts it does n differ in habits from its European cousin.

## Anthus hodgsoni.

*Key to Subspecies.*

A. A stronger rufescent tinge on throat and breast.
  *a.* Paler, with finer striations on lower plumage ..... *A. h. hodgsoni*, p. 281.
  *b.* Darker, with broader striations on lower plumage ..... *A. h. yunnanensis*, p. 282.
B. No rufescent tinge on throat and breast. In colour intermediate between *hodgsoni* and *yunnanensis* ..... *A. h. berezowskii*, p. 283.

### (1186) Anthus hodgsoni hodgsoni.

THE INDIAN TREE-PIPIT.

*Anthus trivialis hodgsoni* Richmond, Blackwelder Res. in China, pt. ii. p. 493 (1907) (Nepal).
*Anthus maculatus.* Blanf. & Oates, ii, p. 304 (part).

**Vernacular names.** *Liku-jitta* (Tel.).

**Description.** Very similar to *Anthus t. trivialis* but with upper plumage strongly suffused with green and with the central black streaks much more narrow and ill-defined; the supercilium is fulvous in front and white over the ear-coverts.

**Colours of soft parts.** Iris dark brown; bill horny-black above, fleshy-brown below with a dark tip; legs and feet flesh-colour or horny-fleshy.

**Measurements.** Wing 84 to 88 mm.; tail 58 to 66 mm.; tarsus about 21 to 22 mm.; culmen about 11 to 12 mm.

**Distribution.** Breeding in the Himalayas, Afghanistan, Gilgit, Kuman, Kashmir, Garhwal. In Winter it is found over the whole of India and Ceylon; birds occurring in Eastern Bengal and Assam are referable to the typical race but birds from Burma, more especially in the South and East, are nearer *yunnanensis*.

**Nidification.** Similar to that of the Tree-Pipit. It breeds at all elevations between 8,000 and 15,000 feet, making a bulky, rather compact nest of grass and roots, often mixed with leaves, bracken and other material and lined with fine grass or grass and hair. It is most often placed in a hollow under a stone or in a bank, sometimes in a shallow depression in the ground under

a bush or tuft of coarse grass. The eggs number three to five, generally four, and resemble those of the Tree-Pipit but blotched eggs are exceptional, the great majority being finely speckled or spotted over their whole surface. Eighty eggs average 21·6 × 16·0 mm.: maxima 23·3 × 16·0 and 22·1 × 17·0 mm.; minima 20·0 × 15·4 and 21·9 × 14·5 mm.

They breed throughout May and June and more rarely in early July at the higher altitudes.

**Habits.** In Summer this Pipit is found in the undulating meadow-lands of the Himalayas, from 7,000 feet upwards, in the vicinity of forests and well-wooded valleys. At this time of the year it is said to be wild and intolerant of observation but in Winter, when it resorts to the plains in vast numbers, it is very tame. When disturbed it flies into trees like the Tree-Pipit and its note and flight are also very like those of that bird. In Assam the earliest birds arrive in the beginning of August and the latest departures take place at the end of April.

## (1187) Anthus hodgsoni yunnanensis.

THE YUNNAN TREE-PIPIT.

*Anthus maculatus yunnanensis* Uchida & Kuroda, Annot. Zool. Jap., ix, p. 134 (1916) (Yunnan).
*Anthus maculatus.* Blanf. & Oates, ii, p. 304 (part).

**Vernacular names.** None recorded.

**Description.** Similar to *A. h. hodgsoni* but, season for season, darker above whilst below it is streaked with broader marks of black and it seems to retain a strong rufescent tinge on throat and breast, even when adult, and also to retain more rufous on the under tail-coverts.

**Colours of soft parts.** Iris brown; bill horny-brown with a black base above, paler below; legs and feet yellowish-fleshy or yellowish-brown.

**Measurements.** Wing 78 to 85 mm.; tail 56 to 65 mm.; tarsus about 20 to 21 mm.; culmen 10 to 11 mm.

**Distribution.** Yunnan and Formosa. Birds from the Shan States and some specimens from Central and South Burma appear to be of this race. It will certainly also be found to occur in the Indo-Chinese countries in Winter.

**Nidification** unknown.

**Habits.** Forrest found this Pipit on Alpine meadows on the Lichiang range between 10,000 and 13,000 feet from May to August.

## (1188) Anthus hodgsoni berezowskii.

THE KANSU TREE-PIPIT.

*Anthus maculatus berezowskii* Sarudny, Orn. Monatsb., xvii, p. 43 (1909) (S.W. Kansu).
*Anthus maculatus.* Blanf. & Oates, ii, p. 304 (part).

**Vernacular names.** None recorded.

**Description.** Above paler than *yunnanensis* but darker than typical *hodgsoni*. Below similar to the former bird but without the strong rufescent tinge on throat and breast.

**Measurements.** Wing 82 to 88 mm.

**Distribution.** Apparently breeding from Setchuan through Mongolia, Manchuria, Siberia to Japan. In Winter it occurs in South China, the Indo-Chinese countries and South-East and South Burma.

**Nidification.** Eggs in my collection from Siberia and Japan are just like those of *A. h. hodgsoni* but smaller. Forty average 21·4×15·7 mm.: maxima **21·8**×15·9 and 20·6×**16·4** mm.; minima **19·1**×16·0 and 19·2×**15·0** mm. The nest is built on the ground, often in wet places, but otherwise it is like that of the Tree-Pipit. The breeding-season is May and June.

**Habits.** Those of the species. This form, like the Tree-Pipit, is truly migratory and in Winter is found over a very wide area, a certain number of birds finding their way into Eastern and Southern Burma.

## (1189) Anthus nilghiriensis.

THE NILGIRI PIPIT.

*Anthus nilghiriensis* Sharpe, Cat. B. M., x, p. 550 (1885) (Nilgiris).
*Anthus nilgiriensis.* Blanf. & Oates, ii, p. 305.

**Vernacular names.** None recorded.

**Description.** A narrow indistinct supercilium bright fulvous; whole upper plumage and lesser wing-coverts bright olive-fulvous, each feather with a broad black central streak except on the rump, where the streaks are brown and ill-defined and on the shorter tail-coverts, where they are obsolete; tail blackish-brown edged with olive-fulvous, the outermost pair of feathers fulvous-white except diagonally across the base, the next pair with fulvous tips to the outer webs and the terminal half of the inner web also fulvous; the next pair generally with a small fulvous tip; median and greater coverts black with broad fulvous edges, primaries and secondaries blackish, with fulvous edges, very broad on the innermost secondaries; lores dusky; sides of the head bright rufous, mixed with brown on the ear-coverts; whole lower plumage rich fulvous, more tawny on breast, throat and under tail-coverts, the

breast and flanks with narrow black streaks; axillaries and under wing-coverts fulvous.

**Colours of soft parts.** Iris red-brown; bill blackish-brown, paler at the base and on the lower mandible; legs and feet pale reddish-fleshy; claws darker brown.

**Measurements.** Total length about 200 mm.; wing 74 to 79 mm.; tail 65 to 69 mm.; tarsus 24 to 25 mm.; culmen 11 to 12 mm.

**Distribution.** Nilgiris and Palni Hills.

**Nidification.** This Pipit breeds between 4,000 feet and the summits of the Nilgiri and Palni Hills but most often above 6,000 feet. It breeds during April, May and June, making a shallow saucer-shaped nest of grass and roots, lined with fine grass bents and placed in a shallow depression of the ground under the shelter of a bush or in coarse grass. The eggs number two or three only and are like dull grey types of eggs of the Tree-Pipit; the stipplings are generally fine and numerous, almost obliterating the ground-colour. Thirty eggs average 22·1 × 16·1 mm.: maxima **23·5** × 16·8 and 23·0 × **17·0** mm.; minima **19·6** × **14·9** mm.

**Habits.** The Nilgiri Pipit is a resident wherever found, not even moving vertically with the seasons. In food, flight, voice etc. it is much the same as the other members of the genus but is not a very tame bird, keeping much to the upland grass-covered hills and plateaus well away from towns and villages.

## Anthus sordidus.

*Anthus sordidus* Rüpp., Neue Wirb., Aves, p. 103 (1835) (Abyssinia).

The typical African form *A. s. sordidus* differs from all our Indian forms in its more smoky, less fulvous, tint of plumage.

*Key to Subspecies.*

| | |
|---|---|
| A. Above general appearance dark brown, the broad central streaks to the feathers dominating | *A. s. similis*, p. 285. |
| B. Above lighter brown, the darker centres not so definite or so dark | *A. s. jerdoni*, p. 286. |
| C. Above paler grey ground, the dark centres to the feathers obsolete | *A. s. decaptus*, p. 287. |

In his 'Illustrations of Indian Ornithology' Jerdon has figured and satisfactorily described the form of *Anthus sordidus* found breeding in South India under the name of *Anthus similis*; and the fact that he confused the two forms of *sordidus* found in Northern and Southern India with one another cannot invalidate his name. Again, his first description, as given in the 'Madras Journal of Literature and Science,' certainly agrees better with

the Southern than the Northern form. Oates's name *cockburniæ* must therefore be discarded.

The bird Jerdon figures and his description both apply to a typical Nilgiri bird and the fact that he says he previously obtained the same bird at Jalna in the Northern Deccan does not make Jalna the type-locality. There is, however, no reason why this race should not have been found in Jalna in Winter, for although there is no specimen from Jalna, there are other specimens from Ahmadabad in the British Museum Collection.

## (1190) Anthus sordidus similis.

THE RUFOUS ROCK-PIPIT.

*Anthus similis* Jerdon, Madr. Jour. L. S., xi, p. 35 (1840) (Nilgiris).
*Anthus cockburniæ*. Oates (in Blanf. & Oates), ii, p. 305.

**Vernacular names.** None recorded.

**Description.** Upper plumage dark brown, each feather edged with fulvous but the black centres dominating the general appearance; tail black, edged with fulvous, the outermost pair of rectrices with the outer web and half the inner web pale rufous, the next pair broadly tipped with the same; wing-feathers dark brown, boldly edged with bright fulvous; an ill-defined supercilium fulvous; lores and a line through the eye dark brown; sides of the head mixed fulvous and brown; chin and throat pale fulvous, remaining lower plumage fulvous, the posterior flanks, vent and under tail-coverts darker and rufescent; a line of spots down each side of the throat and neck and central spots on the breast and anterior flanks blackish-brown.

**Colours of soft parts.** Iris brown; bill dark brown above, paler and yellowish below; legs and feet fleshy-white to reddish-fleshy.

**Measurements.** Length about 225 mm.; wing 86 to 96 mm.; tail 69 to 84 mm.; tarsus 28 to 29 mm.; culmen 15 to 16 mm.

**Young** birds appear to be a deeper rufous below.

**Distribution.** Breeding in the Nilgiris and Palni Hills, occasionally wandering as far North as the Deccan, Jalna and Ahmadnagar in the Winter. Bourdillon also records it as breeding in the higher hills of Travancore, possibly in error.

**Nidification.** The Rufous Rock-Pipit breeds in the Nilgiris above 6,000 feet during April and early May, making a nest and laying eggs quite indistinguishable from those of the preceding bird. It chooses, however, sites in the wilder, more rocky parts rather than in the grass plateaus frequented by the Nilgiri Pipit and it also nearly always places its nest under a stone or rock. Eggs taken by Howard Campbell in April and by Miss Cockburn and Betham in May have a pale grey or stone-coloured ground, in some minutely speckled or spotted all over with grey-brown or reddish-brown, in one boldly blotched at the larger end. The

eggs number one or two, rarely three. Ten eggs average 22·8 × 17·0 mm. and vary between 21·6 × 16·0 and 24·0 × 17·5 mm.

**Habits.** This Pipit is apparently a wilder, more shy bird than most but is not uncommon on the higher, barer parts of the Nilgiris. It perches on rocks rather than bushes and trees both when resting or when disturbed from feeding on the ground. Its flight is stronger and quicker than that of most Pipits but it is normally sedentary and its occurrence below the higher hills seems to be casual only.

## (1191) Anthus sordidus jerdoni.

THE BROWN ROCK-PIPIT.

*Agrodroma jerdoni* Finsch, Trans. Z.S., vii, p. 241 (1870) (Kotegarh).
*Anthus similis.* Blanf. & Oates, ii, p. 306.

**Vernacular names.** None recorded.

**Description.** Differs from the Rufous Rock-Pipit in being a paler brown above with no very definite blackish centres to the feathers of these parts; below it is duller and less rufous, especially about the vent and under tail-coverts; the markings on the breast and flanks are not so well-defined.

**Colours of soft parts** as in the Rufous Rock-Pipit.

**Measurements.** Wing 91 to 101 mm.; tail 76 to 86 mm.; tarsus 28 to 30 mm.; culmen 15 to 16 mm.

**Distribution.** Breeding in the Himalayas from Gilgit to Sikkim and South-West Tibet. In Winter it occurs South to Sind, the Bombay Presidency, Khandesh, Northern Deccan, Nagpur, Hazaribagh, Assam, Chin Hills and Southern Shan States. Jerdon's records of this bird from Jalna probably refer partly to this bird and partly to the previous one.

**Nidification.** The Brown Rock-Pipit breeds from April to June between 4,000 and 8,000 feet in the Himalayas and at much lower elevations in the Salt Range (*Whistler*). The nest is the usual rough cup of grass, lined either with finer grass or with grass and hair, placed under shelter of a rock or bush in open grass-land or more barren patches. The eggs number three or four and have a stone-coloured or white ground with innumerable small spots or specks of sienna-brown, grey-brown or reddish-brown all over this surface. Thirty eggs average 22·8 × 16·6 mm.: maxima **24·1** × 17·7 and 23·6 × **18·0** mm.; minima **21·0** × 16·3 and 22·3 × **15·1** mm.

**Habits.** This is a Pipit both of open grass-lands, surrounded by forests, such as those of Murree and other parts of the Himalayas and of the more rocky barren parts of the Punjab. It is a migratory bird in the true sense of the word, leaving the higher hills entirely in the Cold Weather.

## (1192) Anthus sordidus decaptus.

THE PERSIAN ROCK-PIPIT.

*Anthus sordidus decaptus* Meinertz., Bull. B. O. C., xli, p. 23 (1920) (East Persia).
*Anthus similis.* Blanf. & Oates, ii, p. 306 (part).

**Vernacular names.** None recorded.

**Description.** Much paler both above and below than the Brown Rock-Pipit, more an ashy grey-brown above and less fulvous below; the markings on the sides of the throat and on the breast are much fainter and paler.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 95 to 102 mm.; tail 85 to 90 mm.; tarsus 27 to 28 mm.; culmen about 13 to 14 mm.

**Distribution.** Persia, Afghanistan, Baluchistan, Sind. In Winter apparently wandering a good deal as there are in the British Museum specimens collected in Deesa, Khandesh and Ajmere. This form differs from *A. s. captus* merely in being a little smaller.

**Nidification.** Breeds from April to June on the Afghan and Baluchistan border and is especially common round Quetta, where Betham took many nests containing two to five eggs. The nest, of the usual type, seems nearly always to be placed under a bush or tuft of rank weeds or grass, less often under a rock, although the sites selected are generally very rocky and bare with but scant vegetation. The eggs are like others of the species and thirty average 23·3 × 16·8 mm.: maxima **25·0** × 17·2 and 24·9 × **17·4** mm.; minima **21·5** × 16·4 and 21·9 × **15·2** mm.

**Habits.** Similar to those of the other Rock-Pipits but frequenting much more desert country where the heat is much greater and vegetation, whether wild or cultivated, scanty and restricted to valleys and irrigated patches.

## Anthus richardi.

*Key to Subspecies.*

A. Wing over 90 mm.
  *a.* Hind claw much longer than the hind toe ..... *A. r. richardi*, p. 288.
  *b.* Hind claw very little longer than hind toe..... *A. r. godlewskii*, p. 289.
B. Wing under 90 mm.
  *c.* Lighter above and below, less spotted on breast ..... *A. r. rufulus*, p. 290.
  *d.* Darker above and below, more spotted on breast ..... *A. r. malayensis*, p. 292.

## (1193) Anthus richardi richardi.

RICHARD'S PIPIT.

*Anthus richardi* Vieill., Nouv. Dict. d'Hist. Nat., xxvi, p. 491 (1818) (France); Blanf. & Oates, ii, p. 307.

**Vernacular names.** *Pulla purake, Meta kálie* (Tam.).

**Description.** Upper plumage and lesser wing-coverts fulvous, each feather with a broad blackish-brown central streak, obsolete on the rump and upper tail-coverts; tail dark brown, the central feathers broadly, and the next three pairs narrowly, edged with fulvous, outermost pair white, more or less tinged with fulvous, the base and most of the edge of the inner web brown; the next pair brown, the outer web fulvous-white on the terminal half and the inner web tipped with white; wings dark brown, the coverts and secondaries broadly, and the primaries narrowly,

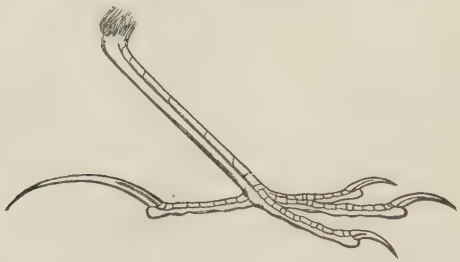


Fig. 60.—Foot of *A. r. richardi*.

edged with fulvous; supercilium fulvous; ear-coverts rufous-fulvous; a line under the ear-coverts and a second down the sides of the throat brown; lower plumage pale fulvous, richer on the breast and with brown streaks on the breast and anterior flanks.

**Colours of soft parts.** Iris brown; bill horny-brown, paler and yellowish at the base and on the lower mandible; legs pale fleshy to reddish-fleshy, the claws brown.

**Measurements.** Wing 90 to 99 mm.; tail 72 to 78 mm.; tarsus 31 to 33 mm.; culmen 14 to 16 mm.; hind claw 13 to 21 mm.

**In abraded plumage** the whole upper plumage becomes darker and the streaks less conspicuous.

**Young birds** have the feathers of the upper parts edged with buffy-white and the black streaks on the throat, fore-neck and breast much wider and more numerous.

**Distribution.** Breeding in Siberia from the Yenesei to the Lena; Altai, Tian-Schan to Kansu. In Winter South to China,

the Indo-Chinese countries, Burma and India. In the latter country it is common all down the East Coast to Ceylon, West it has been found as far as the Sutlej Valley but has not been recorded from the Bombay Presidency or farther South on the West Coast.

**Nidification.** Very much the same as with the Tree-Pipits, but the nest is said to be very flimsy, placed on the ground as usual, often in swampy places near rivers and marshes but at other times in bush-covered plains and even, it is said by Dresser, in the outskirts of woods. The eggs are typical Pipits' eggs, generally rather dull and of the freckled type but occasionally with a pink or yellowish ground and rather more distinctly spotted. Thirty eggs (24, *Jourdain* etc.) average 21·5 × 16·4 mm.: maxims 23·0 × 17·2 mm.; minima 20·0 × 16·5 and 20·8 × 15·4 mm.

The breeding-season lasts from late May to the end of June or early July.

**Habits.** This is a Pipit of the bush-covered and open plains of Siberia, feeding and roosting on the ground but sometimes perching on bushes and low trees. Its call-note is syllabified by Dresser as "tsi" and it has a feeble song which it utters in the air. In India on migration though it keeps by preference to open country it occurs in quite small openings in heavy forests as well as in semi-cultivated country and low jungle.

## (1194) Anthus richardi godlewskii*.

BLYTH'S PIPIT.

*Agrodroma godlewskii* Taczanowski, Bull. Soc. Zool. France, 1876, p. 128 (South Dauria).

*Anthus striolatus* Blyth, J. A. S. B., xvi, p. 435 (1847) (Darjiling); Blanf. & Oates, ii, p. 308.

**Vernacular names.** *Pulla puraki* (Tam.).

**Description.** I can find no character in which *A. r. godlewskii* differs from *A. r. richardi* except in having a shorter hind claw but even in this respect many birds are intermediate and can be assigned to either form. It is possible that a full series of breeding birds will prove that the two forms are one and the same.

Taking a selected series of birds with long hind claws and a second series with definite short hind claws they agree in all other respects. The supposed differences in length of wing and culmen do not exist and there is an equal degree of variation in the amount of white on the outer tail-feathers.

* The name *striolatus* cannot be used, as it was quoted by Gray as a synonym of *rufescens* (Cat. B. Nepal, p. 77, 1846). Hodgson's name *thermophilus* is a *nomen nudum* and the next name available is *Agrodroma godlewskii* of Taczanowski.

**Colours of soft parts** and **Measurements** as in the preceding bird but typically having a hind claw seldom exceeding the hind toe in length. Wing 88 to 97 mm.; culmen 12 to 15 mm.; hind claw 10 to 14 mm.

**Distribution.** Breeding in Assam, Shan States and possibly in other parts of the Himalayas. Probably breeding from Central Asia to Mongolia. In Winter to every part of the Empire, South to Ceylon and to Tenasserim.

**Nidification.** Blyth's Pipit breeds in some numbers in the Khasia Hills at about 6,000 feet but it is extremely local, yearly affecting one or two special open grass ridges and never any other of the many wide open spaces similar in character to those selected. The breeding-season is from the middle of May to the end of June and the nest is a small saucer or pad, sometimes more bulky, of fine grass lined with finer grass, either alone or mixed with hair. It is placed on the ground, well concealed under boulders, stones, bushes or tufts of rank grass. In some cases the grass at the sides and back of the nest is turned up so as to make the nest semi-domed, a feature very unusual in Pipits' nests. The eggs number three or four, very seldom five, and are quite typical Pipits' eggs but they are more distinctly spotted than some and are almost invariably of the type with a white ground and grey-brown spots. Sixty eggs average 21·0 × 16·1 mm.: maxima 22·4 × 16·1 and 21·2 × 17·5 mm.; mimima 18·0 × 15·1 mm.

**Habits.** During the breeding-season the male soars in the air, uttering a feeble but rather pleasant little song and it also displays by rising some thirty feet or so in the air and then fluttering slowly to the ground with quivering wings and its plumage fluffed out as much as possible. While thus engaged it continually utters its song and sometimes continues this on the ground. It appears to keep entirely to the protected sides of the high ridges when breeding and though it may be found near pine-forests, I have never seen them inside them. In the Winter it spreads all over the more open country, wet and dry alike. They leave the Khasia Hills in August, a few late-brooded birds alone remaining until September; on the other hand, many birds were back in their breeding haunts in March.

## (1195) **Anthus richardi rufulus.**

THE INDIAN PIPIT.

*Anthus rufulus* Vieill., Nouv. Dict. d'Hist. Nat., xxxvi, p. 494 (1818) (Bengal); Blanf. & Oates, ii, p. 308.

**Vernacular names.** *Rugel*, *Charchari* (Hind.); *Gurapa-modi-pitta* (Tel.); *Meta kalie* (Tam.).

**Description.** An exact miniature of *A. r. richardi*, differing only in size. It has, however, a proportionately larger bill and

always a comparatively short hind claw measuring between 9·5 and 12 mm.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 76 to 86 mm.; tail 57 to 65 mm.; tarsus 25 to 26 mm.; culmen 12 to 14 mm.

**Young birds** are much more richly coloured below than adults and have the pale edges to the feathers of the upper parts more whitish and conspicuous; the spotting on the breast is also more profuse and the spots larger.

**Distribution.** The whole of India and Ceylon and all Burma as far South as, but not including, Tenasserim.

**Nidification.** The Indian Pipit breeds practically all over India and Burma from Ceylon to about 6,000 feet in the Himalayas and from Sind on the West to Karenni on the East. In the Assam Hills it does not breed over 5,000 feet and seldom over 4,500. Over the greater part of its range May, June and July are the normal breeding months but in Ceylon Messrs. Wait and Phillips have taken eggs in every month from March to October. In many cases the birds have two broods and in some three. The nest is the usual shallow cup of grass, roots etc. lined with finer grass or grass and roots and sometimes with a little dry moss, bracken or other material mixed in the base of the nest. It is always placed on the ground and generally well concealed by grass, scrub or fern. When in more exposed positions the nest is sometimes domed or semi-domed, the long grass at the back and sides being produced over the top. The number of eggs is most often three, four are commonly laid, five very exceptionally. The ground-colour is white, tinged with yellowish- or greyish-stone, less often with buff, reddish or green. The primary markings consist of irregular spots and blotches of brown, fairly numerous everywhere but often most so at the larger end. The secondary markings are of lavender and pale purple and are less numerous. One hundred eggs average 20·2×15·4 mm.: maxima 21·8×15·1 and 19·9×16·4 mm.; minima 13·1×15·4 and 18·9×14·9 mm.

**Habits.** The Indian Pipit is resident wherever found and is one of the most common of Indian birds not actually frequenting buildings and villages. It is, of course, essentially a bird of the open country, whether cultivated, grassy or barren, but it is not plentiful in the barest countries and prefers such as have crops, green grass or even those which are wet and marshy. It makes constant little soaring flights into the air, singing a pleasant little song as it does so, but it never soars in a spiral and then hovers like the Sky-Lark. During the breeding-season the cock-bird often alights on bushes or high grass but in Winter keeps almost exclusively to the ground. It feeds principally on small insects but consumes larger coleoptera, tiny snails, worms etc. and when feeding on mosquitoes or termites, sometimes pursues these into the air.

## (1196) Anthus richardi malayensis.

THE MALAY PIPIT.

*Anthus malayensis* Eyton, P. Z. S., 1839, p. 104 (Malacca).
*Anthus rufulus.* Blanf. & Oates, ii, p. 308 (part).

**Vernacular names.** *Nok-a-chap fon hang yao* (Siam).

**Description.** Similar to *A. r. rufulus* but darker both above and below. On the upper plumage the dark centres of the feathers are blacker, contrast more with the edges and give a more boldly-streaked appearance; below the plumage is a deeper fulvous and the breast is rather more boldly streaked with black.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 78 to 84 mm.

**Distribution.** Peninsular Siam and Tenasserim South to Lombok and Timor. Birds of Southern Burma, North of Tenasserim to Pegu are darker than Indian specimens but are, perhaps, nearer these than to the Malaccan race. In Siam birds from Bangkok and Southwards are nearest *malayensis*.

**Nidification.** Similar to that of the preceding bird. Herbert (Journal Nat. Hist. Soc. Siam) says that the favourite site for the nest is in paddy-fields before the rains start and that the nests vary from a few scraps of grass in a natural hollow to a compact well-made nest with raised sides and practically domed. The breeding-season is from April to the end of July. The eggs, three in number, occasionally four, are not distinguishable from those of the Indian Pipit. One hundred eggs average 21·1 × 15·3 mm.: maxima **21·9** × 16·0 and 19·6 × **16·1** mm.; minima **18·4** × 15·0 and 20·0 × **14·5** mm.

**Habits.** Similar to those of the Indian Pipit.

## Anthus campestris.

*Key to Subspecies.*

A. Darker, more washed with buff; culmen 14 mm. or over ..... *A. c. campestris*, p. 292.
B. Paler, more grey above; culmen 12 to 13 mm. ..... *A. c. griseus*, p. 293.

## (1197) Anthus campestris campestris.

THE TAWNY PIPIT.

*Alauda campestris* Linn., Syst. Nat., 10th ed. i, p. 166 (1758) (Sweden); Blanf. & Oates, ii, p. 309 (part).

**Vernacular names.** *Chillu* (Hind.).

**Description.** Above brown, each feather margined with sandy-buff or ochraceous-buff, the rump and upper tail-coverts sandy-

brown; tail blackish-brown, the central tail-feathers broadly edged with pale ochraceous; outermost pair white on the outer web and with an oblique white terminal half to the inner web, penultimate pair similar but with only a white tip to the inner web; wing-feathers dark brown, edged with sandy-buff; an indistinct supercilium sandy-buff; lores dusky; ear-coverts pale sandy, tipped brown; a line under the ear-coverts and another on either side of the throat dark brown; lower plumage sandy-fulvous, darker on the breast and nearly always showing a few dark striæ.

**Colours of soft parts.** Iris dark brown; bill dark horny-brown above, paler and yellowish below; legs and feet yellowish-fleshy.

**Measurements.** Wing 82 to 92 mm.; tail 65 to 72 mm.; tarsus 25 to 27 mm.; culmen 14 to 16 mm.

**Young birds** are darker and have well-defined streaks on the breast and anterior flanks.

**Distribution.** Breeding in Europe from South of Sweden to the Mediterranean countries, North-West Africa, Asia Minor and West Siberia. In Winter South to the greater part of India.

**Nidification.** Breeds from May to early July, making a typical, but unusually bulky, Pipit's nest of grass lined with finer grass or hair. The eggs number four or five and are typical of the genus. The ground-colour is reddish, yellowish or greenish-white generally densely speckled and spotted all over with varying shades of reddish-brown with secondary marks of lavender and pale purple. Jourdain gives the measurements of 137 eggs, average 21·9 × 15·7 mm.: maxima **23·8** × 16·6 and 22·5 × **17·1** mm.; minima **19·0** × 15·0 and 20·0 × **14·6** mm.

The breeding-season is May and June, second clutches being sometimes laid in July.

**Habits.** Those of the genus. It is found more often in open rather barren country rather than well-cultivated, heavily-grassed tracts, though it does occur in these also and sometimes frequents and breeds in standing crops.

## (1198) **Anthus campestris griseus.**

THE EASTERN TAWNY PIPIT.

*Anthus campestris griseus* Nicoll, Bull. B. O. C., xli, p. 25 (1923) (Turkestan).
*Agrodroma campestris minor* Blasius, Natur. Vög. Mitteleurop., iii, p. 74 (1900).
*Anthus campestris*. Blanf. & Oates, ii, p. 309 (part).

**Vernacular names.** *Chillu* (Hind.).

**Description.** Similar to the preceding bird but paler, rather more grey and less ochreous above and with a smaller bill.

**Colours of soft parts** as in the Tawny Pipit.

**Measurements.** Wing 81 to 88 mm.; tail 63 to 69 mm.; tarsus 25 to 26 mm.; culmen 12 to 13 mm.

**Distribution.** Breeding in Turkestan, Persia and Central Asia. Found in Winter South to Egypt and the greater part of India from Sind and the North-West, East to Western Bengal and South to the Deccan, Central Provinces and the South of the Bombay Presidency.

**Nidification** and **Habits.** I can find nothing recorded.

## (1199) Anthus cervinus.

THE RED-THROATED PIPIT.

*Motacilla cervina* Pall., Zoog. Rosso-As., i, p. 511 (1827) (Siberia).
*Anthus cervinus.* Blanf. & Oates, ii, p. 310.

**Vernacular names.** *Lal gula chillu* (Hind.).

**Description.** Whole upper plumage black, each feather edged with olive-fulvous or pale olive-rufous, the black hardly showing at all on the nape; tail black, the feathers edged with fulvous; the outermost pair of feathers white, with a broad brown edge to the basal two-thirds of the inner webs; the penultimate pair with a V-shaped white tip; wing-feathers brown edged with pale fulvous; a broad supercilium, sides of head, chin, throat and breast cinnamon-red; remainder of lower plumage fulvous, tinged with pink and boldly streaked with black on the lower breast and flanks; under wing-coverts and axillaries buff.

**Colours of soft parts.** Iris brown; bill dark horny-brown above, yellowish below; legs and feet fleshy-white to fleshy-yellow.

**Measurements.** Wing 78 to 89 mm.; tail 57 to 63 mm.; tarsus 21 to 22 mm.; culmen 11 to 12 mm.

**Young birds** have no red on the head, throat or breast. These parts are pale yellowish-buff, immaculate on the centre of chin, throat and fore-neck, heavily streaked with black on the sides and across the whole breast.

The red of the head and throat is acquired by degrees and probably not completely until the third year.

**Distribution.** Breeding in North Europe and North Asia to Kamschatka. Found in Winter South to North Africa, Gilgit, Kashmir, Sikkim to Assam, the whole of Burma, the Indo-Chinese countries, South China and the Malayan Islands. In North-West India Ticehurst records it as fairly common in Sind.

**Nidification.** The Red-throated Pipit breeds during June and July, making the usual Pipit's nest of grass and roots lined with finer bents and sometimes with hair. It is placed on the ground in tussocks of long grass and weeds and is almost invariably well concealed. Marshy ground is selected for breeding purposes, often overgrown with willow-scrub and dwarf-birch. The eggs number four to six and are, as a series, the darkest of all the

Pipits' eggs, the most common type having a reddish-white ground almost obliterated by reddish or blackish-red spots. The eggs, however, vary greatly and almost as great a variety can be obtained as in those of the Common Tree-Pipit.

One hundred eggs (*Jourdain*) average 19·2 × 14·2 mm.: maxima **21·0** × 14·3 and 18·1 × **15·1** mm.; minima **17·1** × 13·9 and 18·0 × **13·4** mm.

**Habits.** Very similar to those of the Tree-Pipit. The first few birds arrive in India in September, the majority in October, leaving again in April. They keep much to damp or even wet ground, resorting to the edges of ponds, lakes and swamps or the coolness of thick green crops.

## (1200) **Anthus roseatus.**

HODGSON'S PIPIT.

*Anthus roseatus* Hodgs., Blyth, J. A. S. B., xvi, p. 437 (1847) (Nepal).
*Anthus rosaceus.* Blanf. & Oates, ii, p. 311.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage black, each feather edged with olive-brown; wings dark brown edged with olive-buff, narrowly on the primaries, broadly so elsewhere; tail dark brown edged with olive; the outermost pair of feathers white on the outer web and diagonally dull white on the terminal half of the inner web; the next pair of feathers whitish at the tip; lores and ear-coverts dusky, the latter streaked with yellowish; a broad supercilium vinous-pink but generally buff posteriorly; chin, throat and breast pale vinous-pink, the sides of the breast and sometimes the centre of the lower breast streaked with black; remainder of lower plumage pale fulvous, boldly streaked on the flanks with black; axillaries and under wing-coverts yellow.

**Colours of soft parts.** Iris dark brown; bill horny-black above, fleshy-brown at the base and fleshy-yellow below; legs and feet fleshy-brown, claws darker.

**Measurements.** Total length about 165 mm.; wing 82 to 94 mm.; tail 62 to 69 mm.; tarsus 23 to 24 mm.; culmen 11 to 12 mm.

**In abraded plumage** in Summer the pale fringes of the upper plumage are worn away and the olive tint is lost. In this state the general appearance is very dark and the olive tinge is replaced by grey, or by fulvous on the rump and upper tail-coverts.

**Young birds** have no vinous colour anywhere, the broad supercilium is fulvous or fulvous-buff and the lower parts are much more heavily streaked with black, the streaks extending to the whole of the breast and forming a line on either side of the immaculate throat and fore-neck.

**Distribution.** Breeding from Afghanistan and Turkestan, throughout the Himalayas to Kansu, Eastern Tibet, Yunnan and the Northern Shan States. In Winter it is found in the plains of Northern India and Assam and in Northern Burma to Arakan.

**Nidification.** Hodgson's Pipit breeds in great numbers in Garhwal and in smaller numbers, though still commonly, throughout Kashmir, Ladakh and Tibet as far as the Central East and South and from this more sparingly to Yunnan and Western China. The nest is a typical Pipit's, perhaps more stoutly built than most and in some cases also the grass nest has a good deal of bracken, leaves etc. worked into the base and external walls. Occasionally it builds a domed or semi-domed nest. The usual site is in among tufts of grass in a hollow between the roots but a hollow under a stone often serves instead. The eggs number three or four, very rarely five, and are like other Pipits' eggs but, as a rule, are dark eggs and of the finely stippled or speckled character, a minority only being of the paler better-blotched type. One hundred eggs average 22·0×15·6 mm.: maxima **24·1**×15·8 and 21·3×**16·4** mm.: minima **19·5**×14·6 and 20·7×**14·4** mm. They breed principally in June and July between 8,000 and 15,000 feet, few birds nesting below 10,000 feet.

**Habits.** Those of the genus. Keeps almost entirely to grass-covered plateaus and sloping hillsides at the higher elevations and is sometimes found quite close to forest. It is not a very shy bird and does not shun observation.

## Anthus spinoletta.

*Alauda spinoletta* Linn., Syst. Nat., 10th ed. i, p. 166 (1758).

Type-locality: Italy.

The typical form differs from *A. s. coutelli* and *A. s. blakistoni* in being darker, and from *A. s. japonicus* in being paler, in general tint as well as in other minor differences.

*Key to Subspecies.*

A. Paler.
  *a.* Edges to feathers of upper plumage more reddish; underparts creamy, breast finely streaked ..... *A. s. coutelli*, p. 297.
  *b.* Edges to feathers of upper parts less reddish; underparts more rosy, practically unstreaked ..... *A. s. blakistoni*, [p. 298.
B. Darker ..... *A. s. japonicus*, p. 299.

## (1201) Anthus spinoletta coutelli.

THE EGYPTIAN WATER-PIPIT.

*Anthus coutelli* Savigny, Descr. Egypt, xxxiii, p. 360 (1828) (Egypt).
*Anthus spinoletta.* Blanf. & Oates, ii, p. 312 (part).

**Vernacular names.** None recorded.

**Description.** Whole upper parts ashy-brown with a distinct rufous tinge, each feather with a broad, dark brown central streak; wings dark brown, the coverts broadly edged and tipped with pale fulvous, the primaries narrowly, and the inner secondaries broadly, edged with the same; lores and an indistinct line under the ear-coverts pale brown; sides of head and neck, a broad supercilium and whole lower plumage buffy-pink or vinous, the throat and chin generally palest.

**Colours of soft parts.** Iris dark brown; bill, legs and feet dark brown to black.

**Measurements.** Total length about 165 mm.; wing 85 to 95 mm.; tail 66 to 72 mm.; tarsus 22 to 23 mm.; culmen about 11 to 12 mm.

**Young birds** have no vinous or pinkish tinge on the ead or body; supercilium and lower surface are pale buff, generally deeper on the breast, streaked on the breast and flanks with dark brown, larger and more prominent in some specimens than in others.

**Distribution.** Breeding-ground unknown, possibly Asia Minor, Persia, Afghanistan and Baluchistan. They winter in Egypt, Palestine, Mesopotamia, Arabia and in India. The great majority of the birds in the British Museum attributed to this form seem to be the greyer *A. s. blakistoni* but one specimen from Quetta and another from Burma are quite as rufous above as are Winter birds from Egypt and therefore must belong to this race. Many other specimens from the North-West Frontier and from as far East as Delhi are intermediate forms of immature birds and quite indeterminable. One specimen obtained by Keen at Kohat is as dark as any European bird but his note on the data ticket, "Common in flocks," would seem to show that it is merely an individual aberration.

**Nidification** unknown.

**Habits.** Very little recorded but almost certainly similar to those of other Water-Pipits.

## (1202) Anthus spinoletta blakistoni.

THE CHINESE WATER-PIPIT.

*Anthus blakistoni* Swinh., P. Z. S., 1863, p. 90 (Yangstse, 140 m. inland).
*Anthus spinoletta.* Blanf. & Oates, ii, p. 312 (part).

**Vernacular names.** None recorded.

**Description.** The Winter plumage is much greyer and much less rufous in the general tint of its plumage than that of the preceding bird; the head especially, at all times, seems more consistently grey and less striped. I can see no other difference beyond its smaller average size.

**Colours of soft parts** as in the Egyptian Water-Pipit.

**Measurements.** Wing 82 to 91 mm.

**Distribution.** Breeding in Central Asia to East Tibet and N.W. China, Altai, Turkestan, Tian-Schan and Nan-Schan. They winter South to North-West India, Gilgit, Kashmir and China.

Occasionally birds occur in China as red above and as large as any Egyptian birds. These must either be attributed to *coutelli* or show that the alleged differences between the two forms are merely individual and not geographical. More actual breeding material is necessary to decide this.

In India it extends South to Delhi, Umballa, Bihar and the plains of Assam. Breeding birds from Tibet were identified by Dresser as belonging to this race.

**Nidification.** Nests and eggs of a Water-Pipit have been frequently sent to me from Tibet which are almost assuredly of this race, although the very fragmentary remains of skins sent with them are hardly more than enough to show that they are Water-Pipits of some kind. The nests—cups of grass, roots, bents and weed-stems, lined with hair—are placed in among the roots of grass and weeds on the ground and generally near the little irrigation canals. The eggs, four or five in number, have a grey-white ground, profusely speckled all over with freckles of greyish-brown, reddish-brown or purple-brown. The average of thirty eggs is 21·7×15·4 mm.: maxima **23·4**×15·1 and 20·6×**16·3** mm.; minima **20·2**×15·3 and 21·1×**14·9** mm.

The breeding-season seems very long, as I have eggs taken in Tibet from the 27th April to the 2nd August.

**Habits.** This is a Pipit of the higher mountain plateaus, which are more or less treeless, grassy wastes; at the same time they seem to prefer the vicinity of water. It is said in its general habits to closely resemble the Common Meadow-Pipit. In India during the Winter it keeps much to swampy ground and to the margins of lakes, rivers and canals.

## (1203) Anthus spinoletta japonicus.

THE JAPANESE WATER-PIPIT.

*Anthus pratensis japonicus* Temm. & Schlegel, Faun. Jap., p. 59 (1847) (Japan).
*Anthus japonicus.* Blanf. & Oates, ii, p. 312.

**Vernacular names.** None recorded.

**Description.** A much darker bird at all seasons than any of the other races; the upper parts have quite dark olive-brown edges to the feathers and below the warm vinous-buff breast and flanks are boldly spotted and streaked with blackish.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 79 to 95 mm.

**Young birds** are much darker than those of the other races and much more profusely marked with blackish-brown below.

**Distribution.** Breeding in Kamschatka, Amur, E. Siberia and Kurile Is. They winter in South China, the Indo-Chinese countries, Burma and as a straggler only in Northern India.

**Nidification.** Nothing recorded. Oates identified two birds trapped on their nests on Mt. Victoria, Chin Hills, 7,000 feet, as being of this race. The skins cannot be traced, so it is impossible to confirm their identification.

**Habits.** Those of the genus. It seems to be merely a casual Cold Weather visitor to India, single specimens having been obtained in Darjeeling, Nepal, Umbala, Multan and Karachi. In Burma it is less uncommon in Winter and Harington found it common in the Shan States and Bhamo District.

## Genus OREOCORYS.

*Oreocorys* Sharpe, Cat. Birds B. M., x, p. 622 (1885).

Type, *Oreocorys sylvanus* Hodgs.

The genus *Oreocorys* contains a single species distinguished from all other Pipits by the rather attenuated, very pointed tail-feathers, which retain, however, the true Pipit white tail-pattern on the outer feathers. The second to the fifth primaries are notched on the outer webs.

## (1204) Oreocorys sylvanus.

THE UPLAND PIPIT.

*Heterura sylvana* Hodgs., Blyth, J. A. S. B., xiv, p. 556 (1845) (Nepal).
*Oreocorys sylvanus.* Blanf. & Oates, ii, p. 313.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage rich rufous-buff, the centres

of the feathers black and the extreme edges greyish-fulvous; the black centres to the feathers of the rump are concealed; two-thirds of the outermost tail-feathers diagonally smoky-white, the white decreasing in extent on each succeeding pair and absent in the two central pairs; wings like the back but the greater and median coverts edged with a more golden-rufous; lores dusky; a small supercilium and sides of the head fulvous, the latter streaked with black; chin and throat fulvous-white spotted on either side with black; lower surface fulvous, darkest on the breast and flanks, where they are heavily streaked with blackish, and palest on the abdomen; axillaries buff; under wing-coverts and edge of shoulder of wing yellow.

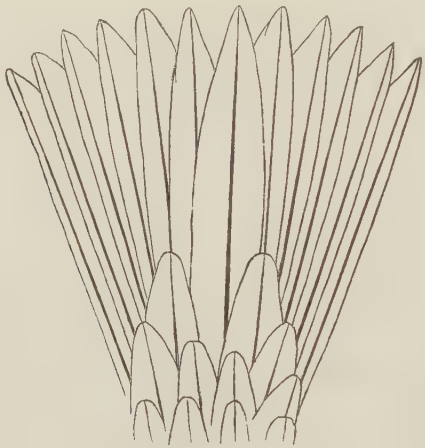


Fig. 61.—Tail of *O. sylvanus*.

**Colours of soft parts.** Iris dark brown; bill above horny-black, below pale reddish-horny or reddish-fleshy; legs and feet pale to dark fleshy.

**Measurements.** Total length about 175 mm.; wing 74 to 83 mm.; tail 65 to 73 mm.; tarsus 23 to 24 mm.; culmen 13 to 14 mm.

**In Summer** the edges of the feathers become abraded and the tint above darker and still more rufous.

**Young birds** appear to be more rufous above and to be striped over the whole lower surface, including the abdomen.

**Distribution.** The Himalayas from Kashmir and the Afghan Frontier to Nepal. A young bird obtained in Etawah is the only record from the Plains. Obtained also by Forrest in Yunnan on the Lichiang Range, 10,000 feet, in July.

**Nidification.** The Upland Pipit breeds from 4,000 or, more commonly, 5,000 up to 10,000 feet wherever found. It makes a typical Pipit's nest of grass, generally very loosely put together, which it places on the ground, well concealed by grass or weeds and, almost invariably, on an open grass-covered hillside. The eggs, which number three to five, have the ground-colour ranging from pure white to pale grey or yellowish-stone, while the markings consist of fairly well-defined spots and tiny blotches of various shades—grey-brown, reddish-brown or purple-brown, either scattered equally all over the egg or rather more numerous at the larger end. The secondary markings are of lavender and pale grey. Thirty eggs average 22·6×17·5 mm.: maxima **24·0**× 17·8 and 22·3×**18·2** mm.; minima **21·4**×17·9 and 22·5×**17·0** mm. A clutch of very small eggs taken by Jones in Simla measure only 20·2×15·5 mm. The breeding-season is from late May to August, many birds having a second brood.

**Habits.** The Upland Pipit is a resident bird throughout its area and does not migrate to the Plains in Winter. It keeps almost exclusively all the year round to the grass-covered sloping hillsides between 4,000 and 10,000 feet and it seems to prefer those which are scantily clad with vegetation. In food, song, flight etc. it is a true Pipit. It has the usual habit of ascending fluttering into the air and after a short flight descending to the ground again with outspread wings. When displaying it fluffs out all its feathers during their short flight and utters a succession of sharp, whistling notes followed by a "chuck-chuck," evidently considered a song.

Fig. 62.—*Alauda a. dulcivox.*

## Family ALAUDIDÆ.

In this family the hinder part of the tarsi is transversely scutellated, a character which separates it from all the other Passerine families. The bill has the edges of both mandibles smooth with a notch in the upper. The wing has either nine or ten primaries, the tail has twelve feathers; the plumage of the nestling is spotted below and barred above; the sexes are alike or nearly so; the head is usually crested and the hind claw generally long and rather straight; there is but one full moult, which takes place in the Autumn.

In their general superficial appearance the Larks are very like the birds of the genus *Anthus* in the preceding family, the *Motacillidæ*.

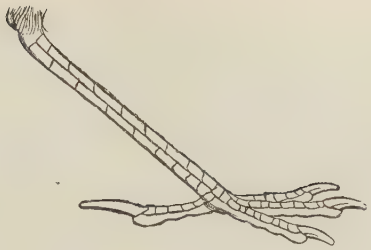


Fig. 63.—Foot of *Alæmon a. doriæ*, to show scutellations on hinder part of tarsus.

*Key to Genera.*

A. Wing with nine primaries, the first reaching to about the tip of wing.
  *a*. A tuft of feathers springing from each side of the crown ..... Otocoris, p. 306.
  *b*. No tuft of feathers.
    *a'*. Inner secondaries reaching to tip of wing ..... Calandrella, p. 323.
    *b'*. Inner secondaries falling considerably short of tip of wing ..... Alaudula, p. 329.
B. Ten primaries, the first always very small.
  *c*. First primary exceeding primary coverts in length.
    *c'*. Bill as long as head ..... Alæmon, p. 304.
    *d'*. Bill much shorter than head.
      *a''*. Nostrils not covered by plumelets. Mirafra, p. 333.
      *b''*. Nostrils quite concealed by plumelets ..... Ammomanes, p. 349.
  *d*. First primary not exceeding primary coverts.
    *e'*. Crest absent, or short and covering whole crown.
      *c''*. Hind claw long and straight.
        $a^3$. Wings long, reaching almost to tip of tail; inner secondaries falling short of tip of wing by more than length of tarsus .. Melanocorypha, p. 311.
        $b^3$. Wings shorter, falling decidedly short of tip of tail; inner secondaries falling short of tip of wing by less than length of tarsus ..... Alauda, p. 314.
      *d''*. Hind claw short and more curved ..... Pyrrhulauda, p. 353.
    *f'*. A crest formed of a few long feathers springing from centre of crown ..... Galerida, p. 342.

## Genus ALÆMON.

*Alæmon* Keys. u. Blas., Wirb. Eur., p. xxxvi (1840).

Type, *Alæmon alaudipes* Desf.

The genus *Alæmon* contains one Indian Lark of large size and distinguished by its long and slender bill, which is slightly curved in its terminal half; the nostrils are fully exposed; the wing is long and has ten primaries, the third, or third and fourth, longest and the first short just exceeding the primary coverts; the tarsi are long and stout, the toes short and the claws are short, curved and blunt; the sexes are alike; "the tongue in this genus is bifid at the tip" (*Ticehurst*).

### Alæmon alaudipes.

*Upupa alaudipes* Desf., Mém. Acad., 1787, p. 504.

Type-locality: Abyssinia.

The typical form of Desert-Lark differs from our Indian form in being much more sandy above and in being less spotted below. There are a considerable number of races, ranging from the Cape Verde Islands to West Central Asia.

Fig. 64.—Head of *A. a. doriæ*.

The name *Saxicola? pallida* of Blyth (J. A. S. B., xvi, p. 130, 1847) is preoccupied by the name *Saxicola pallida* of Cretzschmar (=*Œnanthe monacha*) (Rüpp., Atlas, pl. xxxiv, 1826, ♀) and cannot therefore be used for this Lark. The next name applicable is Salvadori's name *doriæ* given in 1867 to a bird from Persia.

### (1205) Alæmon alaudipes doriæ.

THE PERSIAN DESERT-LARK.

*Certhilauda doriæ* Salvad., Atti R. Accad. Torino, iii, p. 292 (1867) (Persia).
*Alæmon desertorum.* Blanf. & Oates, ii, p. 318.

**Vernacular names.** None recorded.

**Description.** Upper plumage isabelline grey, more grey on the head and neck, more sandy on the back; longer tail-coverts

with dark shafts; central tail-feathers sandy-brown with darker centres, black shafts and pale fulvous edges; outer tail-feathers black edged with fulvous, the outermost with a broad white edge to the outer web; wing-coverts brown, edged with sandy-fulvous, the greater coverts tipped white; the first few primaries dark brown, all but the first, or first and second, with white bases; inner primaries and outer secondaries white, with a broad patch of dark brown on the centre of the outer webs; inner secondaries like the back with darker centres and dark brown shafts; a short supercilium and round the eye white; a line through the eye dark brown; cheeks and ear-coverts fulvous, with a blackish patch at the base of the latter; lower parts dull white, tinged more strongly with fulvous on the breast and flanks; the throat, fore-neck and breast boldly spotted with dark brown.

**Colours of soft parts.** Iris brown; bill horny greenish-grey, pale plumbeous or pale brown above, paler and more fleshy below; legs and feet china-white, claws greenish.

**Measurements.**—*Male.* Wing 129 to 137 mm.; tail 83 to 99 mm.; tarsus 34 to 37 mm.; culmen 27 to 29 mm.

The female is much smaller; wing 116 to 119 mm.; culmen about 24 mm.

**In Summer** the plumage becomes very abraded and the spots below are much more prominent.

**Young birds** have no spots on the breast and the upper parts are barred with blackish-brown and with pale edges to each feather; wings and tail as in the adult.

**Nestling in down** pure white.

**Distribution.** Cutch, Sind, Afghanistan, Baluchistan, Mesopotamia and Persia.

**Nidification.** This fine Lark breeds in the deserts of Sind and also on the bare rocky uplands of Afghanistan to Persia. So little has been recorded about its breeding that I quote in full a letter from Mr. T. B. Bell in which he gives a most interesting account. "They are not rare about Karachi but are scattered over a vast extent of ground. They breed in the desert where there are no trees and little vegetation beyond stunted tamarisk and Sueda bushes with scattered tufts of withered grass. Here, if the male is watched for, the nest will soon be found as he displays constantly in the breeding-season and, within a very little distance of where he alights after his display, the nest will be found. Nor, when once one knows what to look for, is it in the least difficult to find. Scattered about over the plains and sand-hills are numerous little hillocks, each crowned by a scrubby bush or two, the basal half buried in the sand and the flat top mixed with wind-blown debris. Here the Desert-Lark builds his large untidy nest of grass, leaves and soft twigs on a basis of larger twigs, roots and drift. The lining is of finer grass, roots and twigs mixed with a few feathers. The nest is generally placed

on the shady side of the bush but sometimes right in the middle on the top where there is no shade at all. The bird has no real song but before rising on his aerial display utters two loud whistling notes, then three others in a lower key and finally as he flutters up into the air and descends again with wide-spread wings he utters a continuous little tee-tee-tee, starting on the highest note and then continuing in a descending scale. Occasionally he utters this little attempt at a song when perched on a bush." The eggs are two or three in number. The ground-colour is either pure white or, exceptionally, creamy or pale buff, with sparse scattered primary blotches, spots or specks of reddish-brown with secondary marks of lavender and grey. Generally the markings are more numerous at the larger end, where they may form a rough ring. In shape the eggs are long, rather pointed ovals and twenty-five average 23·7 × 17·2 mm.: maxima 25·9 × 17·6 and 25·6 × 18·3 mm.; minima 22·0 × 16·7 mm. They breed in May and June but Col. Buchanan took a nest with two eggs on the Afghan Frontier on the 26th April whilst in Mesopotamia they breed in March.

**Habits.** This Lark is a bird of deserts and stony wastes where they spend practically their whole time on the ground, running about with wonderful speed but flying comparatively indifferently. They feed on beetles, beetle larvæ, insects and seeds and twice Ticehurst found pearls in their stomachs. These birds had been feeding on the Ghizera creek, once the site of a pearl-fishing centre and the pearls had possibly been picked up with gravel to assist digestion. It is a resident bird wherever it is found. The young are said to leave the nest and run about with their parents before they can fly.

## Genus OTOCORIS.

*Otocoris* Bonaparte, Nuovi Ann. Sci. Nat. Bologna, ii, p. 407 (1838).

Type, *Otocoris alpestris* Linn.

The Horned Larks are distinguished from all other genera of the *Alaudidæ* by possessing horns composed of a few lengthened feathers on either side of the crown in both sexes. The bill is of medium length, rather stout and the nostrils are densely covered by plumes; the wing has only nine primaries of which the first three are subequal, the second generally being a fraction the longest; the tarsus is strong but not very long and the hind claw is nearly straight, pointed and about as long as the hind toe or a little longer; the sexes differ in colour.

Although there is only one full moult, abrasion of the feathers makes a considerable difference between the Summer and Winter plumage.

*Key to Species.*

A. Black of the sides of the head connected with the black of the breast ..... *O. penicillata*, p. 307.
B. Black of the sides of the head divided from that of the breast by a white band ..... *O. alpestris*, p. 308.

## Otocoris penicillata.

*Alauda penicillata* Gould, P. Z. S., 1837, p. 126.

Type-locality : Erzerum.

The Indian bird, *O. p. albigula*, differs from the typical form in having a white instead of a yellow chin, throat and supercilium.

## (1206) Otocoris penicillata albigula.

THE PAMIRS HORNED LARK.

*Otocoris albigula* Bonaparte, Consp. Av., i, p. 246 (1850) (Russ. Asiat. Alpes).
*Otocorys penicillata*. Blanf. & Oates, ii, p. 319.

**Vernacular names.** None recorded.

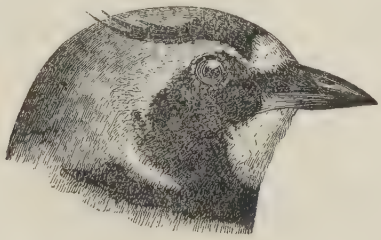


Fig. 65.—Head of *O. penicillata albigula*.

**Description.—Adult male.** Feathers at the base of the forehead, lores, cheeks, ear-coverts and sides of throat black continued as a broad band across the lower throat and breast; forehead, supercilium, posterior ear-coverts, chin and upper throat white; a band across the crown and two tufts of long feathers on either side black; hind crown, nape, neck, upper back and upper tail-coverts vinous grey, the lower back and rump pale ashy-brown merely tinged with vinous; central tail-feathers dark brown with pale edges, the lateral feathers black with obsolete pale edges and the outermost with a broad white edge to the outer web; wing-coverts like the upper back but with concealed brown centres; primaries brown, the first with a wholly white outer web, the others edged narrowly with vinous-white; secondaries brown, the outer with narrow, the inner with very broad pale

edges; remainder of lower plumage white, sometimes washed with vinous on the breast and flanks.

**Colours of soft parts.** Iris brown or red-brown; bill black above, bluish-plumbeous below and paler at the base; legs and feet black in the male, dark plumbeous-brown in the female; soles of feet whitish.

**Measurements.** Wing 109 to 120 mm.; tail 73 to 83 mm.; tarsus about 23 to 24 mm.; culmen about 11 to 13 mm.

**Female** has no black or white on the crown, this being ashy-brown more or less streaked with black; the upper plumage has little or no tinge of vinous and the black of the face and breast seems always to be more restricted and with the white fringes more pronounced.

**Male in Winter.** Has the black parts above fringed with vinous and below with white whilst the vinous above is less pronounced.

**The Young bird** has the upper plumage fulvous-brown, each feather tipped with white and subtipped blackish; the supercilium, sides of the head, chin and throat are yellowish, the lores and ear-coverts mottled with brown; breast brownish-white with black spots and remaining lower parts pure white.

**Distribution.** Persia, Afghanistan, the Pamirs and Gilgit.

**Nidification.** Practically nothing on record. Five eggs given me by Herr M. Kuschel were said to have been laid in three nests very roughly made of grass and lined with hair, grass and some scraps of wool. In each case they were built in natural hollows in the ground in among tufts of coarse stubbly grass. Of the eggs one clutch of two are yellowish-stone in ground-colour minutely speckled all over with yellowish-brown, the others are yellowish-grey marked all over with tiny blotches of rather grey-brown. The five average 24·1×17·1 and vary hardly at all in size. They were taken on the 12th June and 19th July.

**Habits.** This is a Lark of stony plateaus and bare hill-sides like others of the genus. This species, however, seems to move with the seasons up and down the mountains, for Scully says that "it swarms" in Winter down to 5000 feet in Gilgit, also about Yarkand and Kashgar. It also must breed in the higher ranges of Gilgit, as there are numerous birds thence in the British Museum collection which are practically nestlings.

## Otocoris alpestris.

*Alauda alpestris* Linn., Syst. Nat., 10th ed. i, p. 166 (1758).

Type-locality: Coast of Carolina.

*Key to Subspecies.*

A. Larger, wing over 120 mm.; less vinous and more strongly streaked above ..... *O. a. longirostris*, p. 309.
B. Smaller, wing under 120 mm.; more vinous with less distinct streaks above..... *O. a. elwesi*, p. 310.

## (1207) Otocoris alpestris longirostris.

THE LONG-BILLED HORNED LARK.

*Otocoris longirostris* Moore, P. Z. S., 1855, p. 215 (Kulu).
*Otocorys longirostris.* Blanf. & Oates, ii, p. 320.

**Vernacular names.** None recorded.

**Description.** Very similar to *O. p. albigula* but with a white band between the black of the cheeks and ear-coverts and the black of the throat and breast; the upper plumage is darker, less strongly suffused with vinous and much more definitely streaked.

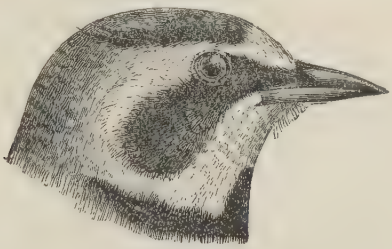


Fig. 66.—Head of *O. a. longirostris.*

**Colours of soft parts.** Iris dark brown; bill dark greyish-horny, paler at the base and on the commissure; legs dark plumbeous-brown or blackish.

**Measurements.** Wing 120 to 131 mm.; tail 74 to 88 mm.; tarsus 24 to 25 mm.; culmen about 15 to 17 mm.

**Young birds** are similar to those of the other species and subspecies.

**Nestlings.** "The gape orange with one black spot at the tip of the inside of the lower mandible, another on the tip of the tongue and a kidney-shaped one in the centre of the tongue" (*C. H. T. Whitehead*).

**Distribution.** Kashmir, North to the Karakorum Pass, Afghanistan and Baluchistan.

**Nidification.** Whitehead found this bird breeding freely on the Afghan frontier between 11,500 and 15,000 feet. He found eggs from early June to the first fortnight of July, but many birds must breed in May before the snows have melted as by June the 15th many eggs had already hatched out. The nests he

describes as merely hollows scantily filled with grass and vegetable down. The eggs numbered two or three and are nearly all of the yellow type, already described, laid by the preceding bird; a few are rather darker and more brown but none are of the greyish type. Twenty-two eggs average 24·9 × 17·1 mm.: maxima 26·2 × 17·7 and 24·2 × 18·0 mm.; minima 23·5 × 16·5 and 24·1 × 16·1 mm. Whitehead records how he twice saw birds which had been disturbed on their nests return and remove the eggs by carefully rolling them down the hill with their bills. A Cuckoo's egg found outside one of these nests seems to have been removed in a similar manner.

**Habits.** A resident bird over 11,000 feet, apparently moving but little lower even in the severest winter. The alarm-note is described as a whistling *peo* or sometimes *ee-up*. Stoliczka found this Lark on the highest passes on the trade routes, hunting for grain in the snow. He describes the song as so like that of the Sky-Lark as to be easily mistaken for it.

## (1208) Otocoris alpestris elwesi.

ELWES'S HORNED LARK.

*Otocorys elwesi* Blanf., J. A. S. B., xli, p. 62 (1872) (Kangra-Lama Pass); Blanf. & Oates, ii, p. 321.

**Vernacular names.** None recorded.

**Description.** Similar to the Long-billed Horned Lark but much paler, less streaked and more vinous above. It is a much smaller bird with a comparatively still smaller bill.

**Colours of soft parts.** Iris dark brown; bill greyish-horny, the culmen darker and nearly black; legs and feet black, soles yellowish.

**Measurements.** Wing 108 to 120 mm.; tail 78 to 87 mm.; tarsus 23 to 24 mm.; culmen 12 to 14 mm.

**Young.** Only differ from those of the Long-billed Horned Lark in being smaller.

**Distribution.** Sikkim, Nepal, South and Western Tibet, Ladakh to the Koko-Nur and Nan-Schan.

**Nidification.** Elwes's Horned Lark breeds in great numbers in Tibet and Ladakh, between 12,000 and 15,000 feet, on the vast stony plains and plateaus which are such a common feature of the Himalayas in these parts. Of vegetation there is nothing but a little coarse and stunted grass and a few small bushes, eaten by goats and sheep down to within a few inches of the ground. Under one of these bushes or tufts of grass this Lark makes its nest in a small natural hollow. As a rule the nest is very meagre, a few roots and scraps of grass mixed with a certain amount of down and perhaps a feather or two; rarely a more ambitious attempt is made and occasionally a really compact, well

put-together pad is made of roots and grass mixed with goats' and yaks' hair and well lined with vegetable down. The eggs generally number two or three, occasionally four. They are like those of the other species but smaller and, as a whole, are less regularly of the yellow type, many eggs being quite indistinguishable from those of the larger Sky-Larks. Eighty eggs average 23·9 × 16·6 mm.: maxima **25·1** × 17·3 and 25·0 × **17·5** mm.; minima **2 3**·× 16·7 and 24·1 × **16·7** mm.

The birds breed from the middle of May until the end of July and may possibly have two broods in warm years.

**Habits.** Those of the genus. They are found up to 17,000 feet and are resident all the year round, in Winter up to the snow-line and down to about 10,000 feet. Like all the birds of this genus they are extraordinarily hardy and will stand intense cold and blizzards such as few living things can contend against.

## Genus **MELANOCORYPHA.**

*Melanocorypha* Boie, Isis, 1828, p. 322.

Type, *Melanocorypha calandra* Linn.

In *Melanocorypha* the bill is thick and gently curved and the nostrils are covered by plumelets; the wing is very long and has ten primaries of which the first is very minute; the hind claw is long and straight. The sexes are alike.

*Key to Species.*

A. Wing over 140 mm.; first primary white on outer web ..... *M. maxima*, p. 311.
B. Wing under 130 mm.; first primary brown on outer web, narrowly edged fulvous.... *M. bimaculata*, p. 312.

### (1209) **Melanocorypha maxima.**

THE LONG-BILLED CALANDRA LARK.

*Melanocorypha maxima* Gould, B. of A., iv, pl. 72 (1867) (Sikkim); Blanf. & Oates, ii, p. 322.

**Vernacular names.** None recorded.

**Description.** Upper plumage brown tinged with rufous on the head and rump, each feather darkest in the centre and edged with pale fulvous; the nape is often rather grey; central tail-feathers dark brown edged with tawny, lateral feathers edged and tipped with white, the white increasing in extent until the outermost have only the base and basal half of the edge brown; primaries brown, the first nearly all white on the outer web, the others narrowly edged with white; coverts and secondaries brown edged with fulvous, the latter also broadly tipped with white; lores, supercilium and cheeks mottled white and rufous, ear-coverts golden rufous; lower plumage dull white tinged with

ashy on the breast and washed with fulvous on the flanks; the breast sometimes shows a few ill-defined spots of brown, perhaps a sign of youth.

**Colours of soft parts.** Iris dark brown; bill whitish-horny or yellow, black at the tip; legs and feet dark brown or "black mottled with dull red" (*Walton*).

**Measurements.** Wing 143 to 154 mm.; tail 83 to 93 mm.; tarsus 29 to 30 mm.; culmen 21 to 24 mm.

**Young birds** are blackish-brown above, each feather edged with yellow or yellowish-white; the lower plumage is washed with yellow and the breast heavily spotted with dark brown; the chin and throat are very yellow.

**Distribution.** From the Koko-Nur to Kansu, South through Tibet to Sikkim.

**Nidification.** Two eggs sent to me from Tibet with the nest and a skin of one parent resemble very large eggs of Sky-Larks, measuring 30 × 19·0 and 29·0 × 19·0 mm. In shape they are very long ovals, in ground-colour very pale yellowish-stone freckled all over with yellowish-brown which, in one egg, coalesce and form a ring at the larger end. The nest appears to have been a very roughly made cup of grass and a few roots and is said to have been placed in a tuft of coarse grass and furze on the sun-baked mud shores of the Rhamtso Lake at an elevation of about 13,000 feet. They were taken on the 25th of July.

**Habits.** Very little recorded. This Lark is said to be very common in Tibet between 12,000 and 15,000 feet, breeding wherever found and not descending much lower in Winter. It is a bird of open bare plains and also of pasture-land surrounded by stony wastes as well as of marshy country. It is a favourite cage-bird with the Tibetans and is said to have a fine song with a great range of notes.

## (1210) **Melanocorypha bimaculata bimaculata.**

THE EASTERN CALANDRA LARK.

*Alauda bimaculata* Ménétr., Cat. Rais. p. 37 (1832) (Mts. of Talysch).
*Melanocorypha bimaculata*. Blanf. & Oates, ii, p. 323.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage and wings dark brown, each feather edged with fulvous, the dark central streaks less conspicuous on the rump and upper tail-coverts; tail blackish-brown edged with tawny-fulvous and with a white apical spot on all but the central pair; a broad supercilium pale fulvous; lores and a line through the eye dusky; a fulvous-white line under this and under the eye; cheeks and ear-coverts rufous-brown, streaked paler; chin, throat and sides of neck behind the

ear-coverts white; a broad black band across the upper breast, broken with white in the centre; lower breast fulvous, streaked with brown; remainder of lower plumage white, the flanks and thigh-coverts washed with fulvous.

**Colours of soft parts.** Iris light to dark brown; bill brown to nearly black on the culmen, greenish-horny below and yellowish on the base; legs and feet flesh-colour or yellowish flesh-colour, darker on the joints.

**Measurements.** Wing 118 to 126 mm.; tail 57 to 61 mm.; tarsus 26 to 27 mm.; culmen 16 to 17 mm.

Fig. 67.—Head of *M. b. bimaculata*.

**Distribution.** Transcaspia, Turkestan, Baluchistan and Persia. In Winter, South to Sind, Punjab, Rajputana, North-West Provinces and United Provinces.

**Nidification.** This Calandra Lark breeds in April and May, making a rather roughly put-together cup-shaped nest of grass, weed-stems and roots lined with finer grass. It is placed on the ground under shelter of tufts of grass, small bushes or, less often, in some crop such as wheat or vetch. The eggs number three or four and are typical Lark's eggs but are noticeable for their great comparative breadth and bold blotching. Many eggs also have a greenish tinge. Twenty eggs average 24·1 × 18·3 mm.: maxima **25·3** × 18·0 and 24·0 × **19·8** mm.; minima **23·0** × **16·1** mm.

**Habits.** The Eastern Calandra Lark frequents barren uplands, sandy dry wastes and also cultivation. It is powerful both in flight and on its legs, running with great speed and it is said to be a shy and wary bird. The Afghans keep them in cages and they sing magnificently both in captivity and in a state of nature. In Winter they collect in very large flocks and a certain number then come as far South as the North-West plains of India.

## Genus **ALAUDA**.

*Alauda*, Linn., Syst. Nat., 10th ed. i, p. 165 (1758).

Type, *Alauda arvensis* Linn.

The genus *Alauda* contains the true Sky-Larks, of which but one species is recognized by Hartert in his latest revision of the group, though this is divided into a great number of races which vary from one another not only in size and colour but also in the comparative length of their different primaries.

In *Alauda* the bill is slender and feeble and the nostrils are covered by plumelets. The wing has ten primaries of which the first is minute, though differing a little according to the geographical position of the subspecies; the length of the second, third and fourth also vary but the wing is always short, not reaching beyond the middle of the tail; the tarsus is long and fairly stout and the hind claw very long and nearly straight.

The sexes are alike and the young are barred above with blackish and white.

There has been considerable discussion and great difference of opinion expressed as to the names some of the races of Sky-Larks should bear. Ticehurst ('Ibis,' 1922, p. 149) resuscitates Brooks's name *dulcivox* for the Western large form of Indian Sky-Lark and I think he does so rightly. Brooks (*in loc. cit. infra*) gives an extraordinarily good diagnosis of this Lark and not only shows how it differs from typical *arvensis* but also how it differs from the smaller local breeding races and from the Eastern form, which more nearly approaches true *arvensis* than any of these. His "cold grey tone of the upper plumage with strongly contrasting central streaks" not only at once separates it from either *inopinata* or *japonica* which *are* found in Winter within the limits of this work, but equally well shows the character in which it differs from *intermedia* with which Hartert has incorporated it. The true *intermedia* is a little darker and more rufescent above and also, generally, more fulvous below.

As regards the number of species which should be recognized, it seems more convenient to recognize two, a larger, *arvensis*, group and a smaller, *gulgula*, group, for in two cases the breeding ranges of two forms seem to overlap. Kinnear keeps *inopinata* as a full species on account of its long fourth primary, but as this character is not *quite* constant I prefer for the present to keep it as a race of the larger *arvensis* group.

### *Key to Species.*

A. Fifth primary falls short of tip of wing by more than 5 mm. ..... *A. arvensis*, p. 315.

B. Fifth primary falls short of tip of wing by less than 5 mm. ..... *A. gulgula*, p. 318.

## Alauda arvensis.

*Alauda arvensis* Linn., Syst. Nat., 10th ed. i, p. 165 (1758)

Type-locality: Sweden.

*Key to Subspecies.*

A. Second, third and fourth primaries subequal, or, second or third very slightly the longest.
  *a.* Paler and less rufous above ..... *A. a. dulcivox*, p. 315.
  *b.* Darker and much more rufous above .... *A. a. japonica*, p. 317.
B. Fourth primary generally the longest .... *A. a. inopinata*, p. 316.

### (1211) Alauda arvensis dulcivox.

THE EASTERN SKY-LARK.

*Alauda dulcivox* Brooks, Str. Feath., i, p. 484 (1873) (Plains, N.W. India).
*Alauda cinerascens* Ehmcke, Jour. f. Orn., p. 313 (1904) (Barnaul in West Siberia).
*Alauda arvensis.* Blanf. & Oates, ii, p. 324.

**Vernacular names.** *Bhurut* (Hind.).

**Description.** Feathers of the upper plumage and wing-coverts with dark brown centres and broad fulvous margins paling to greyish-fulvous on the extreme edges; the hind-neck generally shows a little white and black stippling forming a very indistinct collar; tail brown edged with fulvous, paling to grey; the outermost pair of feathers all white on the outer and also on the inner web except on the basal margin; penultimate feather all white on the outer web and the next pair often narrowly edged with white; primaries edged with fulvous-white, outer secondaries edged with fulvous and tipped with white, innermost secondaries broadly margined all round with fulvous; lores and a broad supercilium to the nape fulvous-white; cheeks and ear-coverts mixed fulvous and brown; lower plumage white washed with fulvous, more strongly on the flanks and breast; sides of chin, the throat, fore-neck, breast and flanks streaked with blackish-brown.

**Colours of soft parts.** Iris hazel or dark brown; bill horny-brown above, yellowish-horny below; legs and feet fleshy-brown or pale yellowish-brown.

**Measurements.** Total length about 200 mm.; wing 105 to 120 mm. (nearly all over 110 mm.); tail 64 to 75 mm.; tarsus 23 to 25 mm.; culmen about 10 to 12 mm. The females are considerably smaller than the males.

**Young birds** have the upper parts very black, each feather fringed with fulvous becoming almost pure white at the tip; the wing-feathers are broadly edged with rufous-fulvous and the lower parts are more heavily spotted and streaked.

**Distribution.** West Siberia, Turkestan, Tian-Schan, Pamirs, Gilgit, Afghanistan and Baluchistan. In Winter it migrates to Northern Africa, Greece, Mesopotamia, Palestine and North-West India.

**Nidification.** There is nothing on record about the breeding of this widely spread form, but two clutches of eggs taken by Whitehead and Harington on the Afghan Frontier appear to belong to this race rather than to the much smaller *A. gulgula inconspicua*. They are quite typical Sky-Lark's eggs of the larger type with a close glossy texture and they measure between 23·1 and 25·1 mm. in length and between 16·3 and 18·0 mm. in breadth. They were taken, one on June 30th and the other on July 20th at an elevation of 10,000 feet.

**Habits.** This is a common migrant to North-West India in Winter but Ticehurst did not obtain it in Sind and it is seldom found beyond the North-West Provinces and the Punjab. In Summer it is found in Afghanistan up to 15,000 feet.

## (1212) Alauda arvensis inopinata.

THE TIBETAN SKY-LARK.

*Alauda inopinata* Bianchi, Ann. Mus. St. Petersb., ix, pp. xxiv, xxx et xxxi (1904) (Tibet).
*Alauda arvensis.* Blanf. & Oates, ii, p. 324 (part).

**Vernacular names.** *Cho-mo* (China).

**Description.** Similar to the preceding bird but distinctly darker, yet more grey, less rufous, on the upper plumage.

**Colours of soft parts** as in *A. a. dulcivox.*

**Measurements.** Wing 95 to 111 mm.; tail 63 to 66 mm.; tarsus about 23 to 24 mm.; culmen 10 to 12 mm. The fourth primary is generally the longest.

**Distribution.** Central, South and Eastern Tibet to the mountains of North-West and Central China.

**Nidification.** The Tibetan Sky-Lark breeds from the beginning of June to early August between 12,000 and 15,000 feet, making a nest just like that of the English Sky-Lark: a cup of grass, roots and perhaps a few leaves and stems of plants lined with the finest grass and roots. It is placed on the ground in grass-lands, among weeds or in standing crops, the latter apparently the favourite site. It is said to be always very well concealed. The eggs number three or four, rarely five, and are just like those of other Sky-Larks of the larger type. Fifty eggs average 23·1 × 16·9 mm.: maxima **25·2** × 16·9 and 23·0 × **17·4** mm.; minima **21·4** × 16·3 and 22·4 × **16·1** mm.

**Habits.** A resident bird in Tibet, merely moving lower with the season but occasionally they wander into the mountains of Assam

these individuals almost invariably being birds of the year, retaining some of the pale terminal barring of the upper plumage. In Tibet it is found both on the grass pasture-lands and in cultivation, especially the latter and it does not frequent the more barren stony plateaus where some of the other Larks are so common. In flight, voice etc. it is similar to other Sky-Larks, singing its beautiful song when soaring high up, often out of sight, in the air. Like other Larks, also, it sometimes bursts into song just before taking to flight and at other times continues it, for a few moments, after landing again. It is said to feed both upon large and small seeds and, possibly less regularly, upon small coleoptera and insects.

## (1213) Alauda arvensis japonica.

THE JAPANESE SKY-LARK.

*Alauda japonica* Temm. & Schl., Faun. Jap., p. 87 (1848) (Japan).
*Alauda arvensis.* Blanf. & Oates, ii, p. 324 (part).

**Vernacular names.** *Cho-mo* (China).

**Description.** A very dark, richly coloured race, very rufous above and decidedly more fulvous on the lower plumage, especially on the breast.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 95 to 102 mm.; tail 60 to 66 mm.; tarsus 23 to 25 mm.; culmen 10 to 12 mm.

**Distribution.** Japan migrating in Winter to South China, Yunnan and Shan States. A bird shot on its nest taken on Mt. Victoria, Chin Hills, was identified by Oates as of this race. To me it appears to be *A. g. cœlivox* and to be quite indistinguishable from that Chinese bird.

**Nidification.** Similar to that of other Sky-Larks. Owston says "they always breed here in cultivation, either in dry crops or on the banks of grass dividing, or surrounding, the rice fields." The eggs, which number four or five, are like those of the other big Sky-Larks though smaller. Twenty-five eggs average 21·9 × 16·3 mm.: maxima **23·9** × 15·3 and 20·5 × **17·4** mm.; minima **20·2** × 16·7 and 22·1 × **15·1** mm.

June seems to be the principal breeding month.

**Habits.** Those of the genus. The Japanese Sky-Lark frequents both lowlands and the slopes of the mountains wherever there are pastures and cultivation. It is a true migrant and wanders very far in Winter but it is possible that some of the South-Western visitors are birds which breed in the mountains of North-East China and Manchuria. It is said to be one of the favourite cage-birds among the Chinese and to be very hardy in captivity, even when kept in the very small cages used by the Chinese for

these birds. Its flight and song are said to be equal to those of the English bird. In Winter it collects in very large flocks and numbers are then trapped and sold as an article of food in the bazaars.

## Alauda gulgula.

*Key to Subspecies.*

A. Lower plumage distinctly fulvous.
  *a.* Above more grey, less rufous ..... *A. g. gulgula*, p. 319.
  *b.* Above more rufous, less grey.
    *a'*. Abdomen much paler than breast .. *A. g. cœlivox*, p. 321.
    *b'*. Abdomen same colour as breast.
      *a''*. Upper plumage brighter and more rufous ..... *A. g. australis*, p. 320.
      *b''*. Upper plumage very dark but not very rufous ..... *A. g. herberti*, p. 322.
B. Lower plumage pale, the fulvous tint not pronounced.
  *c.* Darker and rather more rufous above .. *A. g. guttata*, p. 318.
  *d.* Paler and less rufous, more grey above. *A. g. inconspicua*, p. 322.

The above key is, admittedly, not very satisfactory as the differences between the various races are those of degree of depth in colouring rather than in actual colour. The last two are easily separable by their very pale underparts, whilst *australis* is also more deeply rufous or fulvous below than any of the other races and *herberti* is, sex for sex, almost distinguishable by its small size alone.

### (1214) Alauda gulgula guttata.

THE KASHMIR SKY-LARK.

*Alauda guttata* Brooks, J. A. S. B., xli, p. 84 (1872) (Kashmir).
*Alauda gulgula.* Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Bhurut* (Hind.).

**Description.** This form is very close to *A. a. inopinata* in colour but has the upper plumage a little darker and more rufous; the lower plumage is also a little more fulvous and the streaks on the breast broader and more conspicuous; the pale portions of the tail are rufescent, not pure white.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 89 to 106 mm.; tail 59 to 64 mm.; tarsus 21 to 23 mm.; culmen 11 to 13 mm.

**Distribution.** Breeding in the Himalayas from, but not including, Afghanistan and Gilgit, throughout Kashmir, Garhwal and Kuman. It was also procured by Mandelli in Sikkim.

**Nidification.** The Kashmir Sky-Lark breeds from early May to July from about 5,000 feet up to at least 14,000 feet. It breeds both on the plateaus which are covered with grass, long or short,

and in cultivated country, especially in wheatfields. Its nest is like that of others of the genus and generally very well concealed. The eggs number three or four, very rarely five and vary greatly in appearance. The majority are large, rather handsome eggs with a distinct gloss and a hard strong texture similar to that of the English Sky-Lark. Others are much smaller, have no gloss and the general character is speckled or freckled, exactly like the eggs of the smaller plains' races. It may be that these eggs are those of *A. g. gulgula*, which race does penetrate into the lower hills and breeds below 5,000 or 6,000 feet. All Whymper's fine series from Garhwal taken at over 10,000 feet are of the large, boldly blotched type as are those of Osmaston and others from Leh, Ladakh and the higher mountains of Kashmir. One hundred eggs average 22·5 × 16·8 mm.: maxima 24·3 × 18·4 mm.; minima 20·7 × 15·4 mm.

**Habits.** The Kashmir Sky-Lark is to some extent a resident bird, a certain number being found all the year round up to some 9,000 or 10,000 feet but the majority move to lower elevations in Winter and at that season many are found in large flocks in the plains of the Punjab and North-West Frontier Province, while it extends in smaller numbers as far East as Oudh. In Summer it is found up to 15,000 and as low as 5,000 feet but many of its reported occurrences at the lower elevations are probably referable to *A. g. gulgula*. In its habits generally it differs in no way from other Sky-Larks and in song and flight is said to be but little inferior to the English Sky-Lark and much superior to the plains-dwelling forms.

## (1215) Alauda gulgula gulgula.

THE SMALL INDIAN SKY-LARK.

*Alauda gulgula* Franklin, P.Z.S., 1830-31, p. 119 (Ganges; Benares-Calcutta); Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Buruta-pitta* (Tel.); *Bhurut* (Hind.).

**Description.** This form differs from all those preceding it in its much more fulvous lower plumage, the whole of these parts being strongly suffused with this colour. Above it is very similar to the small Kashmir Sky-Lark.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 82 to 92 mm.; tail 45 to 54 mm.; tarsus 24 to 25 mm.; culmen about 12 to 13 mm.

**Distribution.** Tropical North India, Assam, Burma. In India South to Khandesh and roughly to a line from Hyderabad to Masulipatam.

**Nidification.** This Sky-Lark breeds throughout the Northern plains of India from March to July, often having two broods in the year. It undoubtedly ascends the Himalayas to a considerable

height. Birds breeding in the Kuman below 5,000 feet are certainly of this race and almost equally certainly those breeding below this elevation in Kashmir are also *A. g. gulgula* and not *A. g. guttata*. The nest is the usual cup of grass, mixed with a few roots and lined with finer grass, hair-like roots etc. and is placed on the ground well concealed by weeds, grass or growing crops. The eggs number two or three, very rarely four, and are not only much smaller than those of the Kashmir Sky-Lark but are paler and duller in tone and have a more fragile shell and a glossless texture. Forty eggs average 20·6 × 15·3 mm.: maxima **23·0 × 17·0** mm.; minima **18·4** × 14·5 and 19·3 × **14·0** mm.

Whitehead found it breeding freely at Kohat and Lachi up to about 2,000 feet.

**Habits.** As the Kashmir Sky-Lark is our Indian representative in the country with a Palæarctic temperature so this form is our representative in Tropical Northern India. Where the two meet will not, however, be settled until series of breeding-birds of both races have been procured. In its habits this Lark is like the other forms. It is sometimes found in immense numbers in the grass-covered stretches along the larger rivers of Bengal, Bihar and Assam and possibly at some times collects in flocks, although it is not migratory. On one occasion in March, whilst waiting on a sand-bank on the Brahmaputra River for a steamer, I must have been within hearing distance of many hundreds of Sky-Larks who were soaring and singing in every direction around me, yet they could not have been migrating as this particular tract of country formed a very favourite breeding-place. At the same time they are not found in the driest areas in the dry season and at this time they certainly move locally from such places to better cultivated, better irrigated districts.

The Sky-Larks of the smaller, *gulgula*, group are not quite such fine songsters nor do they soar so high or so continually as do those of the larger, *arvensis*, group.

## (1216) Alauda gulgula australis.

THE SMALL NILGIRI SKY-LARK.

*Alauda australis* Brooks, Str. Feath., i, p. 486 (1873) (Ootacamand).
*Alauda gulgula.* Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Bhuruta-pitta, Niala-pichiké* (Tel.); *Vanambadi, Pullu* (Tam.); *Bhurut* (Hind.); *Gomaritta* (Cing.).

**Description.** Differs from the preceding bird in its brighter, more rufous upper parts and in the still more fulvous abdomen and flanks.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 83 to 95 mm.; wing 51 to 57 mm.; tarsus 23 to 25 mm.; culmen 12 to 13 mm.

**Distribution.** South India and Ceylon. In India South of the last-named race.

**Nidification.** The Nilgiri Sky-Lark breeds in the hilly country of South India up to the extreme tops of the hills. The principal breeding-season is March to May but many birds breed again from August to November. The nest is just like that of the preceding race and two or three eggs are laid, very exceptionally four, similar to those of the other small Sky-Larks. Twenty eggs average 21·7 × 15·9 mm. but a larger series would undoubtedly measure less as two of my clutches are unusually large. Maxima 23·2 × 16·4 and 22·5 × 16·5 mm.; minima 19·5 × 14·3 and 20·1 × 14·2 mm.

**Habits.** Those of the species. It is found alike throughout the plains and up to the highest points in the hills of Southern India, wherever there is cultivation or open grass-land. In Ceylon it is found throughout the low country, except in the wetter tracts during the rainy season, and it also ascends the mountains as high as it can find suitable open country. Wait obtained it at 4,500 feet on the Uva plateau.

## (1217) Alauda gulgula cœlivox.

THE SMALL CHINESE SKY-LARK.

*Alauda cœlivox* Swinhoe, Zoologist, p. 577 (1859) (Amoy).
*Alauda gulgula* Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Bee-lone* (Burmese).

**istribution.** Above very brightly coloured, the rufous and black contrasting more than in *A. g. australis*; the wings are especially rufous; below the abdomen is paler, often whitish and contrasting a little with the breast; the under wing-coverts and axillaries are not nearly so dark a rufous and have the vinous tinge similar to that obtaining in *A. g. guttata*.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 89 to 101 mm.; tail 55 to 61 mm.; tarsus 24 to 25 mm.; culmen 12 to 13 mm.

**Distribution.** South and Eastern China to Yunnan, the Shan States and also on Mt. Victoria in the Chin Hills.

**Nidification.** A bird shot off the nest on Mt. Victoria, Chin Hills, 7,000 feet, identified by Oates as *A. a. japonica*, appears to be nearest this race. Of the three eggs one was broken, the other two measure 22·0 × 15·5 and 21·5 × 15·5 mm. They were taken 16.5.06 and in appearance are exactly like many of *A. g. gulgula*.

**Habits.** Those of the species. A common bird in the hills of South China and breeding both in the plains and hills. It was obtained by Forrest in Yunnan between 8,500 and 10,000 feet in Summer, Harington obtained it in the Shan States and it has

occurred in the Chin Hills, *vide supra*. It is resident where found but probably forsakes the higher hills of its range in Winter.

## (1218) Alauda gulgula herberti.

THE SMALL SIAM SKY-LARK.

*Alauda arvensis herberti* Hartert, Bull. B. O. C., xliii, p. 19 (1923) (Siam).
*Alauda gulgula*. Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Bee-lone* (Burmese); *Nok-kra-chob-ton* (Siam).

**Description.** Above this is the darkest, yet least rufous of all the races of *Alauda gulgula*. It is nearest to *A. g. wattersi* and *A. g. sala*, differing from these in its much darker upper plumage but not in the extent of the striations on the breast and flanks.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 78 to 87 mm.; tail 47 to 54 mm.; tarsus 23 to 24 mm.; culmen 12 to 14 mm.

**Distribution.** Siam, Cochin China and also South-East Tenasserim. Oates's *Alauda peguensis* of Tenasserim and Pegu does not appear to be this form but rather *A. g. gulgula*, which is found commonly in the North and West of that Province.

**Nidification.** The Siam Sky-Lark breeds in Central Siam from April to the end of July, nearly always placing its nest in the dry rice-fields under some extra thick patch of paddy stubble. The eggs number three or four and are like those of the *gulgula* group but have larger blotches and, as a series, are broader ovals. Fifty eggs taken by Williamson and Herbert average 20·5 × 16·0 mm.: maxima **22·3 × 16·5** mm.; minima **18·1 × 15·0** mm.

**Habits.** Those of the species. Keeps much to the rice-fields until these are inundated in the Rains, when they take to the higher, grass-covered lands. Both song and flight are said to be decidedly inferior to those of the European bird.

## (1219) Alauda gulgula inconspicua.

THE SMALL TURKESTAN SKY-LARK.

*Alauda inconspicua* Severtz., Turk. Jevot., p. 142 (1873) (Turkestan).
*Alauda gulgula*. Blanf. & Oates, ii, p. 326 (part).

**Vernacular names.** *Bhurut* (Hind.).

**Description.** The palest and greyest of all the forms of *Alauda gulgula* but even in this form the pale parts of the tail are very pale rufescent, not white as they are in all the larger forms.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 89 to 98 mm.; tail 54 to 57 mm.; tarsus 23 to 24 mm.; culmen 12 to 14 mm.

**Distribution.** Turkestan, Afghanistan, Baluchistan, Bokhara. Specimens from Quetta appear referable to this race but are rather large. It seems possible that the breeding area of this small Sky-Lark overlaps that of the larger form *A. a. dulcivox*; if this be so, it further confirms the correctness of the division of the Sky-Larks into the two groups *Alauda arvensis* and *Alauda gulgula*.

**Nidification.** Nothing recorded.

**Habits.** Those of the species.

## Genus **CALANDRELLA.**

*Calandrella* Kaup, Natürl. Syst., p. 39 (1829).

Type, *Calandrella brachydactyla* Leisler.

The genus *Calandrella* contains the Short-toed Larks, of which we have two species in India.

In this genus the bill is rather short and deep and the nostrils are concealed by plumes; the wing has nine primaries of which the first is long, reaching to the tip of the wing and about the same length as the next two or three; the inner secondaries are long and reach almost to the tips of the primaries; the hind claw is a little longer than the hind toe and almost straight.

*Key to Species.*

A. Fourth primary decidedly shorter than the first three ..... *C. brachydactyla*, p. 323.
B. Fourth primary about equal to first three in length ..... *C. acutirostris*, p. 327

## Calandrella brachydactyla.

*Key to Subspecies.*

A. Upper parts not strongly suffused with reddish; under plumage whitish washed with fulvous-brown on breast.
  *a*. Head and rump a little suffused with reddish; general tone darker ..... *C. b. brachydactyla*, [p. 324.
  *b*. Head and rump with no red tinge; general tone paler ..... *C. b. longipennis*, [p. 325.
B. Upper parts strongly suffused with reddish; under plumage fulvous ..... *C. b. dukhunensis*, [p. 326.

## (1220) Calandrella brachydactyla brachydactyla.

THE SHORT-TOED LARK.

*Alauda brachydactyla* Leisler, Ann. der Wetter. Ges. iii, p. 357 (1814) (South France).
*Calandrella brachydactyla.* Blanf. & Oates, ii, p. 327.

**Vernacular names.** *Pulluk* (Hind.).

**Description.** Upper plumage sandy-buff, each feather boldly streaked with blackish and a more pronounced reddish tinge on the crown, rump and upper tail-coverts; central tail-feathers dark brown broadly edged with rufous-sandy; lateral tail-feathers black narrowly edged with rufous, the penultimate pair broadly edged with pale fulvous on the outer web, the outermost pair with all the outer web and much of the inner web fulvous-white; wing-coverts and quills like the back, the first primary

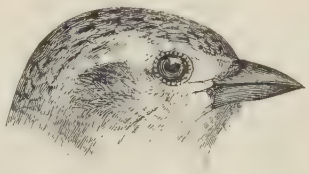


Fig. 68.—Head of *C. b. brachydactyla.*

with the whole outer web fulvous-white; lores, supercilium and round the eye fulvous-white; ear-coverts light brown; a dusky-brown patch on either side of the upper breast; lower plumage dull white washed with fulvous-brown on breast and flanks and almost always with a few small black streaks on the breast.

**Colours of soft parts.** Iris brown; upper mandible horny-brown, darker on the culmen, lower mandible yellowish-horny; legs and feet fleshy-brown or yellowish-fleshy.

**Measurements.** Wing 91 to 98 mm.; tail 58 to 63 mm.; tarsus 19 to 21 mm.; culmen 9 to 10 mm.

**Young birds** have the upper plumage reddish-buff, barred with black and with buff tips to the feathers of the back and wings; below pale fulvous-white, the flanks and breast washed with fulvous-brown and streaked with blackish.

**Distribution.** Breeding from South Europe through Palestine and Asia Minor to Baluchistan. In India it is found in Winter South to Belgaum, Rajputana and Central India and in the United Provinces. The greater number, certainly, of the birds recorded under this name from India are really *longipennis*, but many seem to be referable to the typical form.

**Nidification.** The Short-toed Lark breeds in South Europe from

April to July and occasionally both earlier and later. The nest is the usual Lark's cup-shaped affair of grass but is sometimes said to be lined with hair and feathers. It is placed on the ground in a natural depression under some sheltering tuft of grass or weed. The eggs, which number four or five, are almost white to pale pinkish or yellowish in ground-colour and the markings consist of fine freckles or, less often, of very small blotches, of pale greyish, yellowish or greenish brown, scattered freely over the whole egg. One hundred eggs average 19·6 × 14·6 mm.

**Habits.** This Lark frequents both cultivated country and sandy plains, feeding on grass and other seeds. It is said to be a tame, confiding bird with a sweet, though not powerful little song which it utters both on the wing and when perched on a stone or clod. It is very active on foot and runs with great speed. It is impossible to say how far this bird extends into India as it has not been discriminated from the next form. It is, however, undoubtedly occasionally found in the North-West Frontier Provinces, whilst scattered individuals occur as already stated much farther South.

## (1221) Calandrella brachydactyla longipennis.

THE YARKAND SHORT-TOED LARK.

*Alauda longipennis* Eversm., Bull. Soc. Imp. Mosc., xxi, p. 219 (1848) (Saugarai).

**Vernacular names.** *Pulluk*, *Akonia* (Hind. Bihar).

**Description.** A pale form of the preceding bird with no reddish tinge on the upper parts; the lower parts are still paler and purer white and the pale parts of the two outer pairs of feathers are practically pure white; the breast also appears to be more strongly striated.

**Colours of soft parts** as in the Short-toed Lark.

**Measurements.** Wing 94 to 101 mm.

**Distribution.** Breeding in the Caucasus, Transcaspia, Turkestan, Afghanistan, East Persia, North to Kuldscha. In Winter Whitehead obtained it in the Khagan and Kurram Valleys and my collectors obtained specimens in N. Cachar and in Dibrugarh. Ticehurst records it as very common in Sind and Whistler equally so in the Punjab, and it extends South to Rajputana and the Central Provinces.

**Nidification.** Similar to that of *C. b. brachydactyla*.

**Habits.** Those of the species. This bird has been much confused in the past both with other races and species of the Short-toed Lark so that little that is on record can be relied on as referring to this race alone. In Winter it is found in India both in cultivation and in deserts where, as Ticehurst remarks, "transient vegetation has, for a few brief weeks after monsoon rains, sprung

up and died down again. By the time these Larks arrive there remains nothing of this vegetation, except the fallen seeds, which constitute their food supply."

## (1222) Calandrella brachydactyla dukhunensis.

THE RUFOUS SHORT-TOED LARK.

*Alauda dukhunensis* Sykes, P. Z. S., 1832. p. 93 (Deccan).
*Calandrella dukhunensis.* Blanf. & Oates, ii, p. 328.

**Vernacular names.** *Baghaira, Bagheyri, Baghoda* (Hind.); *Ullulk, Akonia* (Bihar).

**Description.** This is a very rufous form of the Short-toed Lark, the whole of the upper plumage suffused with tawny and the lower plumage buff or fulvous-buff.

**Colours of soft parts.** Iris dark brown; bill, legs and feet as in the other races but darker; the tip of the bill and culmen are practically black.

**Measurements.** Wing 90 to 101 mm.; tail 52 to 56 mm.; tarsus 20 to 21 mm.; culmen 10 to 11·5 mm.

**Distribution.** Probably breeds North of the Altyn-Dag, Humboldt and Nan-Schan ranges and in the Gobi Desert. It certainly breeds in the Tibetan deserts whence I have received fragments of skins, the head, bill and feet of which amply suffice to prove them to have been of this race. In Winter it is found throughout Northern India from Karachi to Assam and South to Belgaum and Madras. It also occurs in Burma.

**Nidification.** Breeds in Tibet, probably in large numbers in the North, but only rarely in the South, during April, May and June at elevations over 12,000 feet. A few clutches of eggs of this bird have been sent me with skins, sufficient for identification, as eggs of *C. a. tibetana*, which they exactly match. The nests are also quite similar. Twenty eggs average 21·5 × 14·8 mm.: maxima **23·1 × 15·0** and 20·6 × **15·4** mm.; minima **20·6** × 14·8 and 21·2 × **14·3** mm.

**Habits.** Those of the species. This race does not come into North-West India in the Winter in anything like the great numbers *C. b. longipennis* does, but it is found farther East and farther South. Possibly now that the differences between the various species and subspecies of Short-toed Larks are better known, this form will be found to be comparatively common in Assam, Eastern India and Burma. This Lark, with many other species, is trapped and netted in enormous numbers during the Winter, from October up to April, and sold in the Calcutta and other markets as Ortolan. Cruel and unnecessary as it may be to kill these little feathered songsters for food, it is true that there are few delicacies better suited to an epicure's palate than a dish of these so-called "Ortolans."

## Calandrella acutirostris.

*Key to Subspecies.*

A. White on tail less in extent and suffused with fulvous ..... *C. a. acutirostris*, p. 327.
B. White on tail more in extent and purer in colour ..... *C. a. tibetana*, p. 328.

It is with considerable hesitation that I keep these two races distinct but Osmaston's specimens obtained in Ladakh off their nests and one similarly collected by Ward certainly do have less, and less pure, white upon their outer tail-feathers than have other specimens sent to me with nests and eggs from Tibet. There is a great extent of variation in individuals and much overlapping, so that more breeding birds are required to either confirm or refute the separation of *C. acutirostris* into two races.

### (1223) Calandrella acutirostris acutirostris.

HUME'S SHORT-TOED LARK.

*Calandrella acutirostris* Hume, Lah. to Yark., p. 265 (18/2) (Karakorum); Blanf. & Oates, ii, p. 239.

**Vernacular names.** *Baghaira*, *Bagheyri* (Hind.).

**Description.** Very similar to *C. b. brachydactyla* but, as noted in the key, with a different wing formula and a finer bill. Above it is darker ashy and below the white is more suffused with brown without any fulvous tint; the white on the tail is rather less in extent.

**Colours of soft parts.** Iris brown; bill yellowish-horny, blackish on the culmen and at the tip; legs and feet fleshy-brown, claws darker.

**Measurements.** Wing 88 to 95 mm.; tail 50 to 57 mm.; tarsus 19 to 20 mm.; culmen 10 to 11 mm.

**Distribution.** Breeding in Karakorum, Western Kuen-lun, East Turkestan and Northern Kashmir to Ladakh. Bianchi records it from the Sir Darya and Tian-Schan and it also occurs in the Khorasan and Paraparmisari districts of Persia. In Winter it is found in Northern India.

**Nidification.** Hume's Short-toed Lark breeds between 13,000 and 15,000 feet in Ladakh, which is probably the limit South and East of this form. The nests are merely small depressions hollowed out by the birds themselves under the shelter of a tuft of grass, bunch of weeds or small bushes, such as grow here and there on the wide, stony plateaus they frequent. These are lined neatly with fine grass and finished off with a soft inner lining of fine cotton-down. The eggs number two to four, nearly always three, and are not distinguishable from those of the much more

common *tibetana*. Twenty-nine eggs average 21·3 × 14·9 mm.: maxima **22·2** × 15·0 and 20·7 × **15·3** mm.: minima **20·3** × 14·4 and 21·5 × **14·0 mm.** They breed from early June to the end of July.

**Habits.** Osmaston writing of this bird under the name *tibetana*, says: "Next to the Sparrow this little bird is undoubtedly the commonest bird in Ladakh. It is found almost everywhere from 10,500 feet up to 16,000 feet, except on steep ground. They especially affect sandy plains dotted with stones and small rocks, which are so common a feature of this country. They are seen solitary or in pairs. The song is monotonous and is uttered from the top of a stone or rock."

## (1224) Calandrella acutirostris tibetana.

BROOKS'S SHORT-TOED LARK.

*Calandrella tibetana* Brooks, Str. Feath., viii, p. 488 (1879) (Tibet); Blanf. & Oates, ii, p. 329.

**Vernacular names.** *Baghaira*, *Bagheyri* (Hind.).

**Description.** Very close to *C. a. acutirostris*, from which it only differs in having the white on the tail purer and more extensive.

**Colours of soft parts** as in Hume's Short-toed Lark.

**Measurements.** About the same as *C. a. acutirostris* but culmen 11 to 12 mm.

**Distribution.** Tibet, from Gyantse, Yatung and Khamba Jong. West to Eastern Kuenlun, where it meets the previous race, North to the Altyn Dag and Nan-Schan, East to the upper ranges of the Mekong, Blue and Yellow rivers. In Winter South to Delhi, Etawah, Moghul Serai, Assam, Bihar and Eastern Bengal.

**Nidification.** Brooks's Short-toed Lark breeds in very great numbers over Southern Tibet wherever there are stony barren plateaus and hillsides devoid of all growth except coarse dry grass, a scrubby thorn-bush or tree and, in the more sheltered corners, a patch of weeds or flowers. Here it either selects a small natural hollow in the ground, or digs one out for itself, under the shelter of a tuft of grass, a low bush or even under a clod or stone. This is neatly lined with grass, sometimes very scantily, sometimes in amount sufficient to form a thick pad for the lining which is always of the softest cotton-down, felted together very neatly and compactly. They breed from May to August and most birds have two broods in the year, sometimes three. The eggs number three, less often two and less often still four. The ground-colour varies from almost white to a pale grey stone, occasionally tinged with faint green, yellow or reddish. The primary markings consist of specks and small blotches of pale greyish or yellowish brown, scattered all over the surface but frequently more plentiful at the larger end, where on a few eggs they form a ring or cap. Typically they are very pale eggs and

they are never boldly or richly marked. One hundred eggs average 21·1 × 14·7 mm.: maxima **22·6** × 14·4 and 22·3 × **15·7** mm.; minima **19·4** × 14·6 and 20·5 × **13·9** mm.

**Habits.** This Lark is found everywhere on barren plains and gently sloping hillsides where there is little vegetation but many stones or much sand and it also frequents dried mud-flats surrounding lakes. It is probably resident between 11,000 and 14,000 feet, being found in Summer breeding up to 16,000 feet but in Winter it descends a little lower and a few birds find their way into the plains, though never in the vast flocks such as those in which *C. brachydactyla* collects at this season in North-West India. It is said to be a very bold little bird, running rapidly about and feeding on microscopic seeds within a very few yards of the watcher, and occasionally stopping to mount some small stone or shrub and give forth its rather sweet, but weak and monotonous little song. In Winter it is said to collect in flocks and at that time to be wilder and more difficult to approach.

## Genus **ALAUDULA**.

*Alaudula* Horsf. & Moore, Cat. B. Mus. E. I. Co. ii, p. 471 (1856, ex Blyth MS.).

Type, *Alaudula raytal* Blyth.

The genus *Alaudula* differs from *Calandrella* in having much shorter inner secondaries; the bill is also more slender.

*Key to Species.*

| | |
|---|---|
| A. Wing under 85 mm. | *A. raytal*, p. 329. |
| B. Wing over 85 mm. | *A. rufescens*, p. 332. |

## Alaudula raytal.

*Key to Subspecies.*

| | |
|---|---|
| A. Bill at front about 11 to 12 mm. | *A. r. raytal*, p. 329. |
| B. Bill at front about 10 mm. or less | *A. r. adamsi*, p. 331. |

### (1225) **Alaudula raytal raytal.**

THE GANGES SAND-LARK.

*Alauda raytal* Blyth, J. A. S. B. xiii, p. 962 (1844) (Lucknow).
*Alaudula raytal.* Blanf. & Oates, ii, p. 330.

**Vernacular names.** *Retal* (Hind.).

**Description.** Upper plumage brownish-grey with dark brown central streaks; central tail-feathers grey-brown edged with fulvous-white; lateral tail-feathers dark brown, the outermost with all the outer web and half the inner web next the shaft white, the penultimate with nearly all the outer web white; wings like

the back; lores, cheeks and supercilium white; ear-coverts pale brown with grey streaks; lower plumage dull white, streaked finely on the breast with dark brown.

**Colours of soft parts.** Iris brown; bill horny-brown, with a yellow or green tinge, the tip almost black; legs and feet fleshy-yellow.

**Measurements.** Wing 74 to 83 mm.; tail 41 to 47 mm.; tarsus 19 to 20 mm.; culmen about 11 to 12 mm.

**Distribution.** Northern India from the North-West Provinces to Bengal; Barnes recorded it from Rajputana and Hume from the Nerbudda. In Burma it occurs from the extreme North on the big rivers South to Thayetmyo.

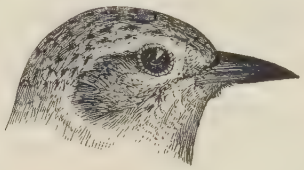


Fig. 69.—Head of *A. r. raytal.*

**Nidification.** This little Lark breeds on the sandy banks and islands of big rivers and the larger of their tributaries. It is not to be found either on the faster running waters of the upper reaches nor on the shores where they run down to the sea, though it does occur on the vast, almost bare, sand-banks in the brackish water of the Megna and other of the great tidal rivers of Bengal. Sand and very scanty vegetation combined with the vicinity of water that is not turbulent seem to be the essentials for their nesting sites. The nest is generally a very flimsy affair, more rarely a comparatively well-built one; grass wound round the inside of some small natural hollow is all the material used, whilst all the protection asked for is a tuft of withered grass, a stone or piece of fallen timber in a waste of sand. Where tamarisk bushes grow these are often built under, but, on the other hand, the nests are occasionally placed beside a tuft of grass so stunted and poor that as a shield from the sun it is worthless. The bird is a very close sitter and only scuttles off the nest when the intruder almost steps on her, or she sometimes continues to sit, a little grey patch, invisible against her grey background, until he passes by. The eggs are two or three in number; in shape long ovals rather pointed at one end and in colour pale grey or yellowish-white, with pale specks, freckles or small patches of sandy-grey, greyish-brown, or pale reddish-brown. Twenty eggs average 20·1 × 14·6 mm.: maxima **21·0** × 14·1 and 20·2 × **15·0** mm.; minima **18·0** × **13·9** mm.

The usual breeding-season is March and April, before the rivers begin to rise, but Dr. Coltart took eggs in Bihar in July.

**Habits.** The Ganges Sand-Lark is found only in the kind of country in which it nests and never seems to wander far from the rivers into adjoining fallow land or land on which dry crops are just appearing. In green crops or damp pasture-land it is never seen. It is a resident bird but sometimes collects in small flocks during the Winter, though often even then still found singly or in pairs. Its flight is not very strong and it does not soar, but it utters its few pleasing and musical notes as it flits from one hummock, or from one sand-bank, to another.

## (1226) **Alaudula raytal adamsi.**

THE INDUS SAND-LARK.

*Alauda adamsi* Hume, Ibis, 1871, p. 405 (Agrore Valley).
*Alaudula adamsi.* Blanf. & Oates, ii, p. 331.

**Vernacular names.** *Retal* (Hind.).

**Description.** Differs in no way from the Ganges Sand-Lark except in having a smaller, more slender bill. If a series of the two birds are laid alongside one another, this race shows a very faint vinous tinge above, which is absent in the Ganges bird.

**Colours of soft parts** as in the preceding bird.

**Measurements.** The same as in *A. r. raytal*, perhaps a little larger. Wing 74 to 88 mm.; culmen 10 mm. or less and finer than in the Ganges Sand-Lark.

**Distribution.** Sind and the Punjab, East to the Jumna.

**Nidification.** Very similar to that of the Ganges Sand-Lark but it sometimes breeds in the sandy Sind deserts well away from any river, the nest being placed in a hollow under a *Salsola* bush, a plant which grows commonly round about Karachi and elsewhere in desert country. The eggs are not distinguishable from those of the Eastern form and, like them, are very glossless. Forty eggs average 19·0 × 14·2 mm.: maxima **21·2** × 14·5 and 19·7 × **15·0** mm.; minima **17·7** × 14·4 and 17·8 × **13·4** mm. Most eggs are laid in April, a good many in March and a few in May.

**Habits.** Very similar to those of the preceding bird but it seems to keep less strictly to rivers and their adjoining country and, also, it is found right down to the sea-coast and all along the shores. This difference is, however, due to the fact that we have sandy shores on the West coast, muddy ones on the East of India. Both this and the last race are tame, confiding little birds, very active on their legs though so feeble on the wing compared with other species of this family.

## Alaudula rufescens.

*Alauda rufescens* Vieill. Nouv. Dict. d'Hist. Nat. xxix, p. 516 (1819).

Type-locality, Teneriffe.

The typical race is a rufous-tinged bird, very different from either of our races.

*Key to Subspecies.*

A. Above darker and more boldly streaked .. *A. r. persica*, p. 332.
B. Above paler and less boldly streaked..... *A. r. seebohmi*, p. 333.

### (1227) Alaudula rufescens persica.

SHARPE'S SAND-LARK

*Alaudula persica* Sharpe, Cat. B. M. xiii, p. 590 (1890) (Niris in Persia); Blanf. & Oates, ii, p. 331.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage and wings pale sandy-brown faintly tinged with fulvous and with broad central brown streaks; middle pair of rectrices sandy with darker centres; lateral tail-feathers dark brown with narrow sandy-fulvous edges, the penultimate pair white on the outer web and the outermost pair white on the outer web and on the inner web next the shaft; lores, indistinct supercilium, cheeks and ear-coverts pale buff; lower plumage buffy-white, more tinged with fulvous on the breast and flanks and streaked with brown, boldly on the breast, faintly on the flanks.

**Colours of soft parts.** Iris grey-brown or brown; bill horny-grey, darker on the culmen and yellowish below; legs and feet fleshy.

**Measurements.** Wing 86 to 105 mm.; tail 60 to 64 mm.; tarsus 20 to 22 mm.; culmen 10 to 11 mm.

**Distribution.** Breeding in South-East Persia to Afghanistan. Wintering in North-West India in Sind.

**Nidification.** Nothing on record. A pair of eggs in my collection taken by Barnes near Peshawar, Afghanistan, on the 1st of May are similar to those of the Ganges and Indus Sand-Larks but are a little more definitely yellowish in tint.

**Habits.** As far as is recorded similar to those of other Sand-Larks but a frequenter of open sandy or stony wastes rather than the sandy banks and islands of rivers. There are specimens in the British Museum collected in Sind during the Winter, so presumably this race is more or less migratory.

## (1228) Alaudula rufescens seebohmi.

SEEBOHM'S SAND-LARK.

*Alaudula seebohmi* Sharpe, Cat. B. M. xiii, p. 590 (1890) (Turkestan).

**Vernacular names.** None recorded.

**Description.** Similar to the preceding bird but a little paler and less distinctly streaked. They also display a faint vinous tinge never seen in *A. r. persica*. The bill is much finer than in that bird.

**Colours of soft parts** as in *A. r. persica*.

**Measurements.** Wing 85 to 94 mm.; tail 61 to 66 mm.; tarsus 20 to 21 mm.; culmen 9 to 10 mm.

**Distribution.** East Turkestan; Yarkand, Kashgar and Aksu; North-West Frontier Province.

**Nidification.** There appears to be nothing on record which definitely refers to this race.

**Habits.** Those of the species.

## Genus MIRAFRA.

*Mirafra* Horsf., Trans. Linn. Soc., xiii, p. 159 (1820).

Type, *Mirafra javanica* Horsf.

In the genus *Mirafra* the bill is short and stout with the nostrils fully exposed; the wing has two primaries of which the first varies between half and two-thirds the length of the second, while the second almost reaches the tip of the wing; the third and fourth and sometimes the fifth are longest and subequal; the hind claw is as long as, or longer than, the hind toe and is slightly curved.

*Key to Species.*

A. Inner web of outer tail-feathers largely white or very pale rufous.
  *a.* Above sandy rufous ..... *M. cantillans*, p. 334.
  *b.* Above very dark rufous ..... *M. javanica*, p. 335.
B. Inner web of outer tail-feathers all brown.
  *c.* Rufous on inner and outer webs of primaries separated by a brown band .. *M. assamica*, p. 336.
  *d.* Rufous on inner and outer webs of primaries confluent..... *M. erythroptera*, p. 340.

The position of *M. cantillans* is a little doubtful as it only differs from the *javanica* group in degree, or depth, of coloration and not at all in pattern of colour or in any other respect. There is, however, a very wide geographical area between these two in which there is no representative form and, as there is an equally

big corresponding gap in the two degrees of colour, it seems justifiable and convenient to accept the two as species, the connecting links, if any ever existed, having been eliminated.

## (1229) Mirafra cantillans cantillans.

THE SINGING BUSH-LARK.

*Mirafra cantillans* Jerd., Blyth, J. A. S. B., xiii, p. 960 (1844) (Bengal); Blanf. & Oates, ii, p. 333.

**Vernacular names.** *Aghun*, *Aghin* (Hind.); *Burutta pitta*, *Aghin pitta* (Tel.).

**Description.** Whole upper plumage dark brown with rufous lateral margins and very pale sandy or whitish terminal bands; central rectrices brown with wide rufous edges, the next three pairs with narrow edges, the penultimate pair rufescent white on the outer web and the outermost pair all rufescent white except on the edge of the inner web; wing-feathers brown with rufous

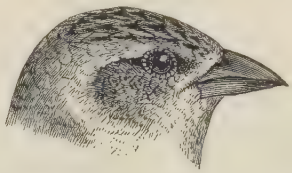


Fig. 70.—Head of *M. c. cantillans*.

edges, very broad on the primary coverts, primaries and outer secondaries; lores and supercilium fulvous-white; cheeks and ear-coverts rufous tipped with brown; chin and throat white, remainder of lower plumage pale fulvous, darker on the breast and flanks and streaked on the former and on the sides of the neck with black.

**Colours of soft parts.** Iris brown; upper mandible horny-brown, yellowish on the commissure and lower mandible; legs and feet fleshy or fleshy-yellow.

**Measurements.** Total length about 155 mm.; wing 74 to 82 mm.; tail 47 to 52 mm.; tarsus 20 to 21 mm.; culmen about 10 to 11 mm.

**In Summer** the pale edges to the feathers get completely abraded and the upper plumage looks much darker and more rufous.

**Young birds** are boldly barred above with black and pale fulvous and are more freely and broadly marked with black on the breast.

**Distribution.** Punjab, North-West Provinces, United Provinces, Central India, Western Bengal, South to Madras on the East and to Travancore on the West. It also occurs in Kashmir. Ticehurst records it as a rare resident in Lower Sind and Whitehead found it "fairly numerous" at Kohat in Summer between 1,000 and 2,000 feet.

**Nidification.** The Singing Bush-Lark breeds practically throughout the area in which it occurs, but is very capricious in its selection of nesting-sites, breeding in numbers in some places and neglecting others to all intents and purposes precisely the same. The nest is placed on the ground and nearly always in plains where there is fairly long grass, sometimes in grass on the sides of ravines and water-ways, very rarely in thin bush or scrub-jungle. The nest is made of coarse and fine grass, lined with finer grass. Sometimes it is a mere fragile cup, more often it is well made, compact and more or less domed, the dome being constructed both with the materials forming the nest and with the growing grass in which it is placed. The eggs number three or four and have an almost white ground, faintly tinged with grey, green, yellow or buff. Most eggs are densely spotted and blotched all over with various shades of brown or yellow-brown, others are speckled in the same manner, whilst a few are rather more boldly and sparsely marked. They have but little gloss and are dull-coloured eggs. Fifty eggs average 20·3 × 15·6 mm. Hume gives the extremes of length as 22·8 and 19·2 mm. and of breadth as 16·5 and 14·7 mm. The breeding-season is from the middle of June, after the break of the rains, to the middle of September.

**Habits.** The Singing Bush-Lark is found in grass-land, cultivation and all open spaces not too arid and parched but it does not frequent stony plains and barren country. It flies better and higher than most of the birds of this genus, though it never soars like the true Sky-Larks. Its song also, though sweet and full, cannot be compared with the song of that bird. It sings both on the wing and whilst seated on some bush or even on the ground and also when in captivity, for which reason it is a favourite cage-bird with Indians; it is also said to be a very fine mimic of the songs and notes of other birds.

## Mirafra javanica.

*Mirafra javanica* Horsf., Trans. Linn. Soc., xiii, p. 159 (1820).

Type-locality: Java.

The typical form differs from *M. j. williamsoni* in being rather more rufous above and much brighter buff below.

## (1230) Mirafra javanica williamsoni.

THE SIAM SINGING BUSH-LARK.

*Mirafra cantillans williamsoni* Stuart Baker, Bull. B.O.C., xxxvi, p. 9, 1915 (Bangkok).

**Vernacular names.** *Nok-a-chap fon lepsan* (Siam).

**Description.** Differs from *M. c. cantillans* in being very dark above, the paler margins to the feathers being narrower and more rufous; the rufous of the wings is much deeper; below, the plumage is duller, less fulvous and more oily fulvous-grey.

In the present bird the dark centres to the feathers of the upper plumage dominate the general tone, whilst in *cantillans* the rufous margins and pale edges do so.

**Colours of soft parts** as in *M. c. cantillans*.

**Measurements.** Wing 70 to 77 mm.; tail 39 to 48 mm.; tarsus 20 to 21 mm.; culmen about 12 to 13 mm.

**Distribution.** Siam. I have also received skins with nests and eggs from East of Myawaddy, Eastern Tenasserim, which are referable to this race.

**Nidification.** Similar to that of the Indian Singing Bush-Lark but the nest is generally placed on the ground in the dry rice-fields in among the grass which grows up here and there after the rice is cut. The dome of the nest is made, like that of the preceding bird, partly from material collected by the bird and partly from the surrounding grass. The eggs, which number three or four, are like those of its Indian cousin but as a whole are much more deeply marked and have a far higher gloss, whilst, as might be expected, they are much smaller. Fifty eggs average 19·7 × 14·6 mm.: maxima **20·7** × 15·0 and 20·6 × **15·3** mm.; minima **17·8** × 14·3 and 18·0 × **13·9** mm.

The principal breeding-season is from the middle of May to the end of July.

**Habits.** Similar to those of the preceding bird but it seems to be even more feeble both in flight and voice, though Herbert says that its song is sweet. It keeps in Siam almost entirely to rice-fields in the dry season, resorting to grass, both short and long, during the rainy season. Herbert remarks on the curious manner in which this Lark, when flushed in long grass, flies a short distance and then hurls itself down headlong into it just as the Button-Quails do.

## Mirafra assamica.

I retain the four geographical races, *assamica*, *marionæ*, *affinis* and *microptera*, as forms of this species. *M. erythroptera* has generally been accepted as a good species on account of the excessive amount of rufous on the primaries. This might be held to be of subspecific value only but that the area of the

two forms would thus overlap. It is true that the extent of the rufous in the wing-quills varies greatly. Thus *M. a. affinis* has more rufous than *M. a. assamica*, and *M. a. marionæ* has more than *M. a. microptera*. On the other hand, none of these four ever have the rufous patches on the outer and inner web joining one another but always divided by a brown band running up the shaft. Both *M. a. assamica* and *M. e. erythroptera* breed n the same area in Western Bengal, Bihar, etc.

*Key to Subspecies.*

A. Upper parts ashy-brown with dark centres; no tinge of rufous on back .. *M. a. assamica*, p. 337.
B. Upper parts dark brown tinged with rufous ..... *M. a. marionæ*, p. 338.
C. Upper parts not very dark but very rufous
  *a*. Wing over 78 mm. ..... *M. a. affinis*, p. 339.
  *b*. Wing under 78 mm. ..... *M. a. microptera*, p. 340.

## (1231) Mirafra assamica assamica.

The Bengal Bush-Lark.

*Mirafra assamica* McClell., P. Z. S., 1839, p. 162 (Assam); Blanf. & Oates, ii, p. 334.

**Vernacular names.** *Aggia* (Hind.); *Bhiriri* (Bhágalpur).

**Description.** Whole upper plumage ashy-brown streaked with black, the black streaks obsolete on the hind-neck and not present on the rump; tail blackish-brown broadly edged with rufous, the penultimate pair of feathers with the outer web all of this colour and the outermost pair the same with paler brown inner webs; lesser wing-coverts brown edged with ashy; median coverts the same but sometimes tinged with rufous; greater and primary coverts dark brown broadly edged with rufous; primaries and outer secondaries dark brown, the bases of the outer webs of all but the two first and the greater part of the inner webs chestnut; inner secondaries dark brown edged with fulvous-ashy; chin and throat fulvous-white; a pale to bright fulvous supercilium; cheeks and ear-coverts mixed fulvous and brown; lower plumage dull fulvous, broadly streaked with black on the lower throat, breast and sides of the neck.

**Colours of soft parts.** Iris pale brown; bill above dark horny-brown, nearly black at the tip, yellowish next the gape, lower mandible yellowish-horny; legs and feet pinkish-brown, yellowish-brown or dull fleshy.

**Measurements.** Wing 82 to 84 mm.; tail 45 to 50 mm.; tarsus 24 to 25 mm.; culmen about 13 to 14 mm.

**Young birds** have the feathers of the upper parts fringed with rufous-white and with subterminal bars of black; lower parts pale fulvous, streaked with black on the breast.

**Distribution.** Assam, Eastern Bengal, Bihar, Central Provinces, Oudh, Nepal, Sikkim and the whole of the Terai from Nepal to Eastern Assam; Cachar, Sylhet and Manipur. South it extends on the East to Orissa. In Bengal it is confined to the rather well-wooded Eastern districts and in Bihar is not found apparently any great distance from the Terai.

**Nidification.** The Bengal Bush-Lark breeds at the commencement of the rains, making its nest in the end of May and early June so that the young hatch when the whole country is teeming with food. They probably have two broods, as fresh eggs have been taken as late as September and early October. The nest varies from a scanty pad of grass, loosely and carelessly thrown together, to a well-made cup with a dome made of dry and living grass with an entrance near the top. The site selected may either be in grass or weeds or less often under a clod, a fallen log or a pile of debris but in nearly every case it is well hidden. The eggs number three or four, somtimes only two and very rarely five. They are typical Larks' eggs; the ground varies from pure white to pale greyish, yellowish or stone-colour, profusely speckled, spotted and blotched all over with various shades of brown, from pale yellowish-brown to deep purple-black. The secondary markings are of grey or neutral tint. The eggs have a much more decided gloss than those of *Anthus rufulus*, with which they might well be confused. Fifty eggs average $20{\cdot}7 \times 15{\cdot}3$ mm.: maxima $\mathbf{22{\cdot}1 \times 16{\cdot}0}$ mm.; minima $\mathbf{18{\cdot}9 \times 14{\cdot}2}$ mm.

**Habits.** This Lark is a bird of well-wooded, well-watered country; it is very abundant in Bengal, Assam and the low country at the foot of the Himalayas, extending in lesser numbers into Bihar, Western Bengal and the Nepal Terai. It becomes numerous again in the better-watered parts of the Central Provinces. It is a tame, familiar bird and though it keeps much to fairly long grass and bushes it does sometimes enter compounds and is common in cultivated fields. It has a sweet but not very powerful song, which it sings either seated on some bush or tall patch of grass, or as it flutters a little way into the air and then sails down on outstretched wings. It never soars and its flight is neither very strong nor sustained. I have heard this Lark singing on bright moonlight night in Bengal, a most unusual thing for any Indian bird to do unless roused by some passing jackal or other vermin.

## (1232) **Mirafra assamica marionæ.**

THE SIAMESE BUSH-LARK.

*Mirafra assamica marionæ* Stuart Baker, Bull. B. O. C., xxxvii, p. 34 (1915) (Ayuthia, Central Siam).

**Vernacular names.** *Nok-a-chap fon lepsan* (Siam).

**Description.** The Siamese Bush-Lark differs from the preceding bird in being less ashy above and in having a distinct rufous tinge to the pale edgings of the feathers of this part; the pale nuchal markings are also better defined. It is a much smaller bird with a curiously long tarsus.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 75 to 80 mm.; tail 40 to 45 mm.; tarsus 27 to 28 mm.; culmen 12 to 13 mm.

**Distribution.** Siam, Cochin China and Annam. A single specimen from Kyauk Phyon in Tenasserim also seems referable to this race and it is probable that all the birds in this region will prove to be the same.

**Nidification.** Not recorded.

**Habits.** Apparently similar to those of *M. a. microptera*. It is said to have a sweet little song and to assemble in some numbers, if not in actual flocks, during the Winter. It keeps, as far as is known, to quite open grass-lands and rice-fields.

## (1233) Mirafra assamica affinis.

THE MADRAS BUSH-LARK.

*Mirafra affinis* Jerdon, Madr. Jour. Lit. & Sci. xiii, pt. 2, p. 136 (1844) (Goomsoor); Blanf. & Oates, ii, p. 335.

**Vernacular names.** *Eeli-chitta* or *Eeli-jitta* (Tel.); *Chirchira* (Hind.); *Leepee* (Cen. Ind.); *Gomaritta* (Cing.); *Vanam padi*, *Pullu* (Tam.).

**Description.** Above, the prevailing tone is rufous owing to the edging to the feathers being wholly of this colour, so that, compared with either of the preceding forms, it appears to be a rufous rather than a grey-black bird; below, the colour is a much brighter fulvous.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 79 to 86 mm.; tail 41 to 50 mm.; tarsus 24 to 25 mm.; culmen 13 to 14 mm.

**Distribution.** Southern India from South Orissa on the East and from Mysore on the West. Ceylon.

**Nidification.** The Madras Bush-Lark breeds in Southern India from March to May and in Ceylon Messrs. Wait and Phillips have taken or seen eggs *in situ* in every month from January to September, April to July being the favourite months. The nest is just like that of *M. a. assamica* but is less often domed. In India two to four eggs are laid, in Ceylon generally two only, sometimes three. They are quite indistinguishable from those of the Bengal Bush-Lark. Fifty eggs average 20·6 × 15·5 mm.: maxima **23·1** × 15·8 and 21·9 × **16·0** mm.; minima **18·9** × 15·7 and 19·5 × **14·9** mm.

**Habits.** Those of the species. It is found wherever there are suitable open spaces, whether of dry grass, pasture or cultivation, even in small patches of grass-land surrounded by forest. It is said sometimes to sing its sweet little song perched quite high up in tall trees.

## (1234) Mirafra assamica microptera.

THE BURMESE BUSH-LARK.

*Mirafra microptera* Hume, Str. Feath., i, p. 483 (Thayetmyo); Blanf. & Oates, ii, p. 336.

**Vernacular names.** *Chinna-eeli-gitta* (Tel.).

**Description.** Exactly like the Madras Bush-Lark but a little darker and less rufous and decidedly smaller.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 67 to 77 mm.; tail 40 to 45 mm.; tarsus 22 to 23 mm.; culmen 12 to 13 mm.

**Distribution.** Chin Hills, Arakan, Central and South Burma, but probably replaced by *marionæ* in Eastern Tenasserim.

**Nidification.** The Burmese Bush-Lark breeds from June to August, making a nest on the ground just like that of the other Bush-Larks, sometimes domed, sometimes a mere shallow cup. The eggs are small replicas of those of the Madras Bush-Lark but are a good deal darker as a series. Twenty eggs average 19·5 × 14·0 mm.: maxima **21·5** × 14·5 and 21·1 × **15·4** mm.; minima **17·4** × 14·2 and 18·5 × **14·0** mm.

Two is the normal clutch, three being seldom laid.

**Habits.** This Bush-Lark differs in its ways but little from any of the others. It is perhaps more often found in denser bush and scrub than is frequented by the other races and it also seems to be a more persistent singer on the wing than the Bengal or Madras birds are. Oates says that they often frequent fallow ground and Hopwood found them breeding on ploughed land, the nest being hidden under clods of earth.

## Mirafra erythroptera.

*Key to Subspecies.*

A. Darker and more tinged with ruddy above ..... *M. e. erythroptera*, p. 341.
B. Paler and more pure grey, less ruddy above ..... *M. e. sindiana*, p. 342.

## (1235) Mirafra erythroptera erythroptera.

THE RED-WINGED BUSH-LARK.

*Mirafra erythroptera* Jerdon, Madr. Jour. Lit. Sci. xiii, pt. 2, p. 136 (1844) (Jalna, Deccan); Blanf. & Oates, ii, p. 334 (part).

**Vernacular names.** *Jungli aggia* (Hind.); *Chinna eeli-jitta* (Tel.).

**Description.** Differs from the Madras Bush-Lark in having the chestnut of the primaries on the outer and inner webs confluent instead of divided by a band of brown; the underparts are a trifle less fulvous; the bill averages smaller and the hind claw shorter.

**Colours of soft parts** as in the other Bush-Larks.

**Measurements.** Wing 74 to 84 mm.; tail 47 to 52 mm.; tarsus 22 to 23 mm.; culmen 11 to 12 mm.

**Distribution.** Northern India from the Eastern Punjab to the Bombay Presidency, Rajputana, Deccan, Central Provinces, Bihar and rare in Western Bengal, three specimens having been obtained in that Province as far East as Manbhum.

**Nidification.** The Red-winged Bush-Lark breeds throughout the area in which it is found from May to October; in Bihar, where it is very common, May and June are the two months in which most birds breed; in Deesa Butler took eggs from April to July, whilst Davidson in Khandesh took them in September and October. The site selected is sometimes in open grass-land or cultivation, sometimes in a ploughed field or a bare stony plain almost without vegetation, at other times in bush, scrub or thin jungle. The nest is quite similar to that of other species of Bush-Lark and is generally domed and very well concealed. The eggs number two or three, very seldom four, and, though Hume says they sometimes lay five eggs, such a number must be exceptional. In appearance they do not differ from the eggs of other Bush-Larks but, typically, the markings are smaller and more numerous. Fifty eggs average 19·5 × 14·6 mm.: maxima **21·2** × 13·8 and 20·0 × **15·5** mm.; minima **17·9** × 14·0 and 20 × **13·6** mm.

**Habits.** The Red-winged Bush-Lark is a bird of the dry areas of Northern India in the Central North, the Bombay Presidency and the rest of its range as given above, the Bengal Bush-Lark taking its place in the wetter districts of the North-East, though the ranges overlap in a wide area, whilst the Sind Red-winged Bush-Lark takes its place in the still more dry portions of the West and North-West. In its habits it differs but little from the other Bush-Larks but is a rather less familiar bird and keeps much more to thin bush- and scrub-covered country rather than to the quite open plains. It has the same habit of rising some distance into the air on fluttering

wings, singing as it does so, and then slowly descending to earth, its wings stiffly outspread and showing very red in a bright light. It rests both on the ground and on bushes etc. but feeds almost entirely on the former. It is said to be a shy, retiring bird, seeking shelter directly it knows it is being watched.

### (1236) Mirafra erythroptera sindiana.

THE SIND RED-WINGED BUSH-LARK.

*Mirafra erythroptera sindianus* Ticehurst, Bull. B. O. C., xli, p. 55 (1920) (Karachi).
*Mirafra erythroptera.* Blanf. & Oates, ii, p. 334 (part).

**Vernacular names.** *Jungli aggia* (Hind.).

**Description.** Similar to the preceding bird but paler and greyer above, less ruddy; below, paler on the axillaries, under wing-coverts and flanks and less reddish-bay on the wing-feathers.

**Colours of soft parts** and **Measurements** as in the Red-winged Bush-Lark.

**Distribution.** Sind and the Punjab; Jodhpur East to Etawah. Ticehurst says: "I have traced it from the Habb River on the Baluchi Frontier to Kotri on the Indus, and Blanford found it East of Umaket towards the Rajputana boundary."

**Nidification.** Similar to that of the preceding subspecies. The breeding-season lasts from early April to August and Ticehurst records seeing young, apparently just on the wing, in November.

**Habits.** "It is very definitely a bird of very sparse desert scrub-jungle, where scattered Euphorbias ('Cactus'), together with a little desert-grass and stunted Acacias and Camel-thorn bushes, save an otherwise bare desert from being a howling wilderness of rock and sand. Outside such haunts I never met with this species, unless it was in similar but rather thicker jungle." (*Ticehurst*).

## Genus GALERIDA.

*Galerida* Boie, Isis, 1828, p. 821.

Type, *Galerida cristata* Linn.

In this genus the bill is long and powerful and the nostrils are covered by short plumelets; the head is furnished with a thin but long crest; the wing has ten primaries, of which the first is very small, the second reaches nearly to the tip of the wing, and the third, fourth and fifth are subequal and longest; in a few individuals the second equals the third; the hind claw is about the same in length as the hind toe and very straight.

*Key to Species.*

A. Bill at front over 12·5 mm.; general colour above grey-brown ..... *G. cristata*, p. 343.
B. Bill at front under 12·5 mm.; general colour rufous.
  *a*. Wing under 90 mm.; pectoral streaks few and narrow ..... *G. deva*, p. 347.
  *b*. Wing over 92 mm.; pectoral streaks numerous and broad ..... *G. malabarica*, p. 348.

## Galerida cristata.

*Alauda cristata* Linn., Syst. Nat., 10th ed. i, p. 166 (1758).

Type-locality: Vienna, Austria.

*Key to Subspecies.*

A. Generally smaller; wing under 105 mm.
  *a*. Paler and more grey; wing under 102 mm. ..... *G. c. chendoola*, p. 343.
  *b*. Darker and more rufescent; wing under 106 mm. ..... *G. c. leautungensis*, [p. 346.
B. Generally bigger; wing over 105 mm. .... *G. c. magna*, p. 345.

Owing to their Winter ranges overlapping, it is extremely difficult to discriminate between the various races of this Lark. From an examination of the material in the British Museum, there would seem to be three fairly well-marked races which occur in India: *i. e.*, a small rather paler form breeding in the plains of India with a wing between 93 and 101 mm.; another small but darker form breeding from China to Tibet with a wing between 96 and 105 mm.; and, finally, a larger and paler form breeding in Central Asia to the boundaries of India on the Baluchistan and Afghan frontiers with a wing nearly always over 105 and up to 117 mm. In all three races, however, we get exceptional birds during the Summer months and, therefore, apparently in their proper breeding-range, which either exceed or are below the limits of measurements here given. It may be that with more breeding material better definition of the races will be possible.

### (1237) Galerida cristata chendoola.

Franklin's Crested Lark.

*Alauda chendoola* Franklin, P. Z. S., 1831, p. 119 (Ganges and Nerbudda).
*Galerita cristata*. Blanf. & Oates, ii, p. 337 (part).

**Vernacular names.** *Chendul* (Hind.); *Chendul, Jutu-pitta* (Tel.).

**Description.** Upper plumage sandy-brown with broad mesial streaks of black or blackish-brown; central tail-feathers light brown,

edged still paler; lateral feathers darker brown, narrowly edged with fulvous; penultimate feathers with broader pale edges and the outermost feathers nearly all of this colour and almost black on the inside of the inner web; wing-coverts and quills brown edged with sandy-brown, the latter rufous on the bases of the inner webs; lores brown; feathers round the eye and small supercilium white; ear-coverts and cheeks fulvous-white mottled with brown; lower plumage white, faintly tinged with fulvous, a little stronger on the breast and flanks, the breast boldly streaked with dark brown and the flanks with fainter streaks, sometimes almost entirely absent; under wing-coverts and axillaries rufous-pink.

**Colours of soft parts.** Iris hazel to dark brown; bill yellow-horny, darker on the culmen; legs and feet pale brown or yellowish-brown.

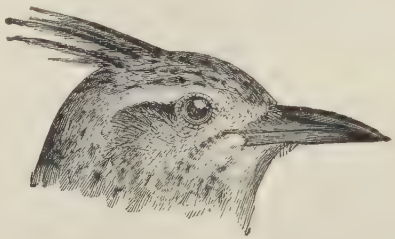


Fig. 71.—Head of *G. c. chendoola*.

**Measurements.** Total length about 185 mm.; wing 93 to 101 mm. (one 105 mm.); tail 65 to 75 mm.; tarsus about 22 mm.; culmen 13 to 14 mm.

**Young birds** have the upper parts barred with white with subterminal bars of blackish; below white with a few blackish streaks on the breast.

**Distribution.** Sind and North-West India to Sambhur and to Raipur in the Deccan and Rajputana; East to Oudh and Bihar. Birds from the Persian Gulf and Mesopotamia are all *magna*. Ticehurst considers that Harington's, Whitehead's and Magrath's records of Crested Larks in the Kurram Valley at 7,000 feet refer to this race but the birds seem to be nearer *magna*.

**Nidification.** This Crested Lark is resident and breeds freely throughout its range from April to June, less often in March and occasionally, perhaps a second brood, in July. The nest, like that of all Larks, is placed in a depression in the ground under the shelter of a tuft of grass, a stone, clod of earth or fallen branch, etc. It is cup-shaped, never domed, and is sometimes a very poorly-built shallow affair, sometimes quite a well-built cup. It is made almost entirely of fine grasses, but is nearly always lined with a little wool, hair, cotton-down or the flowering ends of grasses. The eggs number three or four and in shape are broad

ovals with a close and often glossy texture. The ground-colour is a very pale yellowish-stone, rarely tinged with reddish or greenish. The primary marks are of various shades of light brown or reddish-brown, the secondary are of purple-grey and neutral tint and both consist of fair sized blotches rather than specks and freckles as they are in other Larks' eggs, some eggs being quite boldly marked. In most eggs they are scattered, not very thickly, over the whole surface, being rather more numerous at the larger end, where they may form a ring or cap. Fifty eggs average 21·5 × 16·4 mm.: maxima **23·5** × 16·2 and 22·0 × **17·3** mm.; minima **19·8** × 16·1 and 22·0 × **15·3** mm.

**Habits.** Franklin's Crested Lark is a resident species, being found wherever there are wide open plains of scant vegetation or ploughed land without any great growth of crops. In habits it comes half-way between the Bush-Larks and the Sky-Larks. It soars like the latter and sings whilst doing so, though both flight and song is but a feeble imitation. It never, however, flutters into the air as the Bush-Larks do, first rising more or less perpendicularly and then sailing down on stiffly-spread wings. Nor does it perch on bushes or elevated positions but both rests and feeds entirely upon the ground. It is a favourite cage-bird and thrives well in captivity, its seed diet being then varied with a little parched or dry millet and soft "*suttoo*."

## (1238) Galerida cristata magna.

HUME'S CRESTED LARK.

*Galerita magna* Hume, Ibis, 1871, p. 407 (Yarkand).
*Galerita cristata.* Blanf. & Oates, ii, p. 337 (part).

**Vernacular names.** *Chendool* (Hind.).

**Description.** Differs from Franklin's Crested Lark in its larger size. It is, perhaps, on the whole a little more reddish above and a trifle deeper fulvous below.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 106 to 117 mm.; tail 78 to 89 mm.; tarsus 23 to 24 mm.; culmen about 15 to 16 mm.

**Distribution.** Transcaspia, Mesopotamia, Persia, Turkestan, Afghanistan, Baluchistan and the mountains of the frontiers of North-West India.

**Nidification.** Hume's Crested Lark breeds from Transcaspia as far South as the North-West Frontier of India. Whitehead and Harington found it breeding abundantly at about 7,000 feet in the Khagan and Kurram Valleys and Betham records that it breeds in great numbers round Quetta. The nest differs in no way from that of Franklin's Crested Lark but the bird generally selects even barer and more stony wastes and hillsides, though it manages to conceal its nest very successfully among the roots of

tufts of coarse grass. The eggs number three to five in most of the countries it inhabits but in Persia the clutches frequently number six and here the nest is nearly always placed in fields of high corn where it is very hard to find. In colour, shape and character the eggs resemble those of the preceding bird but are considerably bigger. Sixty eggs taken in Mesopotamia and on the Indian Frontier average 22·6 × 17·1 mm., whilst 100 taken in Persia average 22·1 × 17·0 mm. Maxima **24·2** × 16·7 and 24·0 × **18·4** mm.; minima **20·0** × 16·9 and 21·1 × **15·3** mm. The breeding-season is from early April to the middle of June, most eggs being laid in late April and early May.

**Habits.** This form of Crested Lark is migratory in its habits, great numbers visiting Sind and the North-West of India in Winter, arriving in the middle of October and leaving in the latter half of March. Even during this season they seem more exclusively birds of desert country rather than of cultivated tracts, although many birds must come from the Persian highlands, where they frequent corn- and wheat-fields. Both flight and song seem to be superior to those of our Indian Plains' birds, though in no way approaching those of the Skylark. They feed on seeds of all kinds and, Petherick says, very largely on small grass-buds and young wheat-shoots.

This, as well as the other subspecies, is said to be an excellent mimic, copying the notes of many other birds.

## (1239) Galerida cristata leautungensis.

### The Tibet Crested Lark.

*Alauda leautungensis* Swinh., Ibis, 1861, p. 256 (Leautung, W. China).

**Vernacular names.** None recorded.

**Description.** Very similar to Franklin's Crested Lark but rather darker and more rufous above and below.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 96 to 105 mm.; culmen about 13 to 14 mm.

**Distribution.** Tibet, the mountains of North-West China to N.E. Chihli. It does not appear to be found in Ladakh or Western Tibet.

**Nidification.** La Touche found this Crested Lark breeding in North-East Chihli; it certainly breeds in Kansu and Setchuan and is very abundant in South Tibet. In this latter country it breeds between 12,000 and 14,000 feet on the barer and more stony plateaus, making a nest and laying eggs which are indistinguishable from those of *G. c. magna*. Forty eggs average 22·4 × 16·6 mm.: maxima **24·2** × 15·9 and 23·2 × **17·7** mm.; minima **21·0** × 16·0 and 22·0 × **15·3** mm.

The breeding-season is rather protracted and I have eggs taken from the 3rd of May (Shanhaikuan) to the 1st of August (Gyantse, Tibet).

**Habits.** Those of the species. This form is very doubtfully migratory; I obtained individual specimens in Cachar and Sylhet and Coltart obtained one in Lakhimpur, all in January, whilst La Touche also obtained a couple of specimens one winter in the foothills of North-East Chihli. It doubtless moves vertically with the seasons but possibly not to any great degree.

## (1240) Galerida deva.

Sykes's Crested Lark.

*Alauda deva* Sykes, P. Z. S., 1832, p. 92 (Deccan).
*Galerita deva.* Blanf. & Oates, ii, p. 338.

**Vernacular names.** *Chinna chandool* (Tel.).

**Description.** Lores and supercilium pale rufous; whole upper plumage and wing-feathers rufous with broad blackish-brown centres; the upper tail-coverts more rufous and with the dark centres concealed; tail dark brown edged with rufous, the outermost feathers nearly all rufous and the penultimate with the outer webs all rufous; cheeks and ear-coverts mixed brown and rufous; under plumage, under wing-coverts and axillaries rufous, a few dark streaks on the breast and on the sides of the chin and throat.

**Colours of soft parts.** Iris dark brown; bill horny-brown, blackish on the culmen and yellowish below; legs and feet pale yellowish-brown.

**Measurements.** Wing 79 to 88 mm.; tail 45 to 51 mm.; tarsus 18 to 19 mm.; culmen 11 to 12 mm.

**Young birds** have the feathers of the upper parts edged with white and with subterminal black bars: the underparts are paler than in the adult.

**Distribution.** Eastern Punjab, United Provinces, Central India, Cutch, Rajputana, Bombay Presidency South to Mysore on the West and Madras on the East.

**Nidification.** Sykes's Crested Lark breeds principally after the break of the rains in June up to the middle of October but over much of the area it inhabits it appears to breed also, though less regularly, in April and May, more especially in the South-Western districts. The birds select either dry open plains or well-drained cultivated country as sites for their nests, building them in small natural depressions under tufts of grass or bushes, under which they are nearly always well concealed. The nests themselves are rather shallow, loosely-made cups of roots and grass or coarse fibre, the lining being of finer grass-bents and roots. The number of eggs laid is either two or three, though once General Betham found four in a nest at Poona. The ground-colour is a very pale

stone, in some eggs practically white, in others tinged with yellow, grey or dull pink; most eggs are freely speckled all over with pale yellowish- or greyish-brown, often forming a denser zone at the larger end. A minority of eggs are more boldly marked all over, less densely and with larger darker spots of blackish-brown or purple-brown. In these latter the secondary markings of pale grey or neutral tint are more obvious. Forty eggs average 19·9 × 14·6 mm.: maxima **23·0** × 15·1 and 19·8 × **15·4** mm.; minima **17·5** × 14·0 and 18·3 × **13·3** mm.

**Habits.** This little Lark is a bird both of sandy plains with but scant vegetation and of better cultivated land covered with crops and pasture. It sings both whilst flying and when seated on the ground and has a sweet song which makes it a favourite cage-bird with Indians. It is a much more rapid runner on the ground but in other respects is very much like the true Sky-Larks in its habits.

## (1241) Galerida malabarica.

THE MALABAR CRESTED LARK.

*Alauda malabarica* Scop., Del. Flor. et Faun. Insubr., p. 94 (1786) (Malabar).
*Galerita malabarica.* Blanf. & Oates, ii, p. 339.

**Vernacular names.** *Chinna chandool* (Tel.).

**Description.** Very like Sykes's Crested Lark but much larger; the underparts are nearly always paler with the centre of the abdomen whitish; the breast is heavily streaked with blackish; under wing-coverts, axillaries and the rufous parts of the tail much deeper.

**Colours of soft parts.** Iris dark brown; bill horny-brown above, yellowish- or whitish-flesh below with a dark tip; legs and feet livid fleshy.

**Measurements.** Total length about 155 mm.; wing 92 to 99 mm.; tail 55 to 60 mm.; tarsus about 22 mm.; culmen about 11 to 12 mm.

**Distribution.** Western India from Guzerat to Travancore; Ahmadabad; common over the greater part of the Deccan.

**Nidification.** The Malabar Crested Lark breeds from July to October, generally after the first burst of the rains, when a little grass and other vegetation has sprung up in this otherwise very bare ground it so often selects as a home. A few birds breed in June also, and in the Nilgiris they breed twice, first in February, March and April and again from August to early October. In these hills and in the other hill districts of Southern India it certainly ascends as high as 5,000 feet to breed and probably considerably higher. The nest is much like that of Sykes's Creste Lark but whilst the nest of the latter bird is almost invariably

very well hidden, the nest of this bird is often quite open and exposed, although partly sheltered from the sun by a stone, clod of earth or bush. The eggs number two or three and do not differ from those of the preceding bird except in being rather larger. Thirty eggs average 22·0 × 16·0 mm.: maxima **24·1** × 17·0 and 23·6 × **17·3** mm.; minima **19·0** × 14·8 and 21·3 × **14·3** mm.

**Habits.** The Malabar Crested Lark frequents any kind of open country, bare laterite table-land, open sandy wastes, grass-covered hillsides or well-cultivated land round villages. It sings both when soaring in feeble imitation of the Sky-Lark or when perched on or near the ground. Miss Cockburn, who thought that in the Nilgiris this Lark never sang on the wing, writes: "He sits on a stone or the stump of a dead tree while performing his part in the general concert. With drooping wings and tail erect he continues turning round and strutting about until his song comes to a close, which it seldom does before he has imitated the peculiar song or call of every bird and beast that may come within reach of his most wonderful ear." Miss Cockburn says of a bird she kept in a cage that it exactly reproduced sounds so contrasted as the neigh of a horse and the shrill wail of the Kite.

## Genus **AMMOMANES.**

*Ammomanes* Cab., Mus. Hein. Th. i, p. 125 (1850).

Type, *Ammomanes deserti* Licht.

The genus *Ammomanes* is represented in India by two species of very rufous-coloured Larks. In this genus the bill is thick, slightly curved and has the nostrils covered by small plumes; the wing has ten primaries, of which the first is about one-third the length of the second, the second is about 6 mm. shorter than the first and the third, fourth and fifth are longest and subequal; the hind claw is about equal to the hind toe and not much curved.

*Key to Species.*

A. Tail deep rufous, tipped with black .... *A. phœnicura*, p. 349.
B. Tail brown throughout, tinged with rufous ..... *A. deserti*, p. 352.

### Ammomanes phœnicura.

*Key to Subspecies.*

A. Larger, wing over 100 mm. ..... *A. p. phœnicura*, p. 350.
B. Smaller, wing under 100 mm..... *A. p. zarudnyi*, p. 351.

## (1242) Ammomanes phœnicura phœnicura.

THE INDIAN RUFOUS-TAILED FINCH-LARK.

*Mirafra phœnicura* Franklin, P. Z. S., 1831, p. 119 (Ganges, Calcutta–Benares).
*Ammomanes phœnicura.* Blanf. & Oates, ii, p. 339.

**Vernacular names.** *Aggiya, Retal* (Hind.); *Ambali-jori-gadu, Dowa-pitta* (Tel.).

**Description.** Lores dusky; an ill-defined supercilium pale rufous; whole upper plumage, lesser and median wing-coverts dark brown, with obsolete paler edges and darker centres showing more definitely on the crown; rump and upper tail-coverts deep rufous; tail deep rufous with broad blackish-brown tips; greater coverts dark brown edged with sandy-rufous; quills dark brown edged externally with sandy-rufous, the inner secondaries tipped with rufous and all the quills with broad rufous margins to the inner webs; ear-coverts and sides of head mixed rufous and brown; lower plumage, axillaries and under wing-coverts deep rufous; the throat and upper breast paler and streaked with black.

**Colours of soft parts.** Iris dark brown; bill dark horny-brown, fleshy on the base of the lower mandible; legs and feet pale fleshy to fleshy-brown.

**Measurements.** Wing 100 to 107 mm.; tail 49 to 59 mm.; tarsus 22 to 23 mm.; culmen about 13 to 14 mm.

**Distribution.** Northern India West of a line drawn from the Rann of Cutch to Delhi, East to Dinapore in Eastern Bengal with the Ganges as the Northern boundary and South to Mysore and Travancore.

**Nidification.** This Finch-Lark is one of the most consistent and regular of all Larks in its breeding habits. Occasionally eggs may be found in February and equally seldom in late May, March, April, and the first week in May being the period during which nine out of every ten eggs are laid wherever they may be. In Sholapore and Poona Davidson found the nest built in holes in banks of rivers and ravines but the favourite site undoubtedly is a depression, either natural or scraped out by the birds, under a clod of earth in a ploughed field. At other times it is made under shelter of a stone or rock or, more rarely still, under a bush or among the roots of grass. Often this Finch-Lark makes its nest on the ground where there is no hollow but in such cases it builds up a little retaining wall of small stones all round the nest, a characteristic of other species of Finch-Larks also. The nest varies considerably; when placed in a hole in a bank it is well made and thickly lined with wool, hair or other soft material; when placed under a clod or other shelter it is more shallow, and is roughly put together of grass and roots and thinly

lined with wool etc. The eggs number three or four, sometimes two only, and are typical Larks' eggs. The ground varies from pure white, which is exceptional, to pale yellowish or greenish stone-colour covered, generally rather densely, with tiny blotches and freckles of reddish- or yellowish-brown with secondary or underlying marks of neutral tint and lavender. In some eggs the markings form a dense ring round the larger end and less often an irregular cap. Fifty eggs average 21·2 × 15·7 mm.: maxima **23·2** × 15·8 and 23·0 × **16·5** mm.; minima **19·1** × 15·4 and 21·2 × **14·3** mm.

**Habits.** This Finch-Lark frequents open country of any kind so long as it is sufficiently dry; its favourite resorts, however, are dry ploughed fields and fields from which the crops have been cut but in which the stubble is still standing. It feeds largely on grass-seeds but it also eats small grain freely and it has been recorded as frequenting fields of high-growing millet and feeding upon the ripe crop. Its song is pleasant but poor and ill-sustained and, such as it is, is uttered from the ground or from a bush or hillock. When displaying during the breeding-season it flutters almost straight into the air for a few feet and then descends, uttering a soft whistling note, its wings spread and feathers distended.

## (1243) Ammomanes phœnicura zarudnyi.

The Persian Rufous-tailed Finch-Lark.

*Ammomanes cinctura zarudnyi* Hartert, Bull. B. O. C., xii, p. 43 (1902) (E. Persia).

**Vernacular names.** None recorded.

**Description.** A much smaller bird than the preceding one and distinguished at once by its much paler coloration, the lower parts being a creamy-rufous.

**Colours of soft parts** as in the Indian race.

**Measurements.** "5 mm. longer than in *A. p. arenicolor*, wing 92–97 mm." (*Hartert*).

**Distribution.** East Persia to Baluchistan. Two specimens with wings of 93 and 92 mm. sent me from Quetta, Baluchistan, are both of this race.

**Nidification.** Similar to that of the preceding form but it is more of a desert bird, breeding on rocky barren hillsides and stony wastes.

**Habits.** This race of Finch-Lark keeps more exclusively to deserts and stony hillsides than the last and is but seldom seen in crops or cultivated country. With this exception its habits do not differ from those of the Indian form.

### Ammomanes deserti.

*Alauda deserti* Licht., Verz. Doubl. Mus. Berlin, p. 28 (1823).

Type-locality: Egypt.

The typical form is very close to our Indian bird but is paler and with even less well-defined streaks on the throat and breast.

### (1244) Ammomanes deserti phœnicuroides.

THE INDIAN DESERT FINCH-LARK.

*Mirafra phœnicuroides* Blyth, J. A. S. B., xxii, p. 583 (1853) (Kashmir).
*Ammomanes phœnicuroides.* Blanf. & Oates, ii, p. 340.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage pale earthy-brown tinged with pinky-rufous on the upper tail-coverts and, in some specimens, showing faint streaks of blackish on the crown; tail brown, edged with fulvous and tinged with rufous at the base and with the whole of the outer web of the outermost feathers pale rufous-pink; wing-coverts and quills light brown edged with pale fulvous; the inner bases of the primaries and nearly the whole of the inner webs of the secondaries rufous; lores brown, the lores and the eye surrounded by white; cheeks and ear-coverts greyish-brown; chin, throat and upper breast fulvous-white, indistinctly streaked with dark brown; remainder of lower plumage dull greyish rufous-pink; under wing-coverts and axillaries rufous-pink.

**Colours of soft parts.** Iris pale brown to hazel; bill above dark horny-brown, yellowish or pale horny-yellow below; legs and feet pale yellowish-brown.

**Measurements.** Wing 95 to 105 mm.; tail 65 to 69 mm.; tarsus 22 to 23 mm.; culmen 13 to 15 mm.

**Distribution.** Kashmir, N.W. Frontier Province, Punjab, Sind, Afghanistan, Baluchistan, Mekran Coast, Muscat. It straggles into the Plains in Winter as far as Jacobabad, Rohri and Sukkur.

**Nidification.** Currie found this bird breeding in some numbers on the rocky limestone hills near Kerman as well as in the desert country in their immediate vicinity. It breeds commonly in Sind in the stony foothills of the North; Magrath took its nest near Khar on the Afghan Frontier and Cock, Buchanan and others took many nests and eggs round about Nowshera in the Punjab. The nest itself is like that of the Rufous-tailed Finch-Lark, and like that bird the Desert Finch-Lark makes a neat little encircling wall of small stones round its nest to retain the materials in position. It seems to keep almost entirely to barren hilly country in the breeding-season and selects very desolate rocky sites for its nest, which is usually built under the shadow of a rock or boulder.

The eggs number three or four and are like those of the Indian Rufous-tailed Finch-Lark but generally decidedly less reddish-brown in general tint. Sixteen eggs average 22·1 × 16·4 mm.: maxima 23·2 × 17·0 mm.; minima 19·3 × 15·0 mm. The breeding-season is from the middle of March to the middle of May, a few eggs being laid up to the middle of June.

**Habits.** This is not a migratory Lark but in Winter a few birds wander some distance into the plains from the hills where they breed. It is purely a desert form and is rarely seen in cultivation, living almost entirely on the seeds of grass and desert plants. Ticehurst thinks that it never drinks, as he never saw it visit the water-holes where various other birds came to drink. Its actions on the ground are strong and quick but its flight is feeble and ill-sustained. The song is pleasant but weak and is said to be uttered both on the wing and on the ground.

## Genus **PYRRHULAUDA**.

*Pyrrhulauda* Smith, Ill. Zool. S. Africa, pt. vi (1839).

Type, *Pyrrhulauda australis* Smith.

The genus *Pyrrhulauda* contains certain small Finch-Larks in which the sexes are dissimilar.

In this genus the bill is very short and deep with the culmen well rounded; the nostrils are densely covered with plumelets; the wing has ten primaries, of which the first is very small, not exceeding the primary coverts, and the second, third and fourth are longest and subequal; the hind claw is short and well curved.

*Key to Species.*

A. Lower surface blackish.
  *a*. Forehead and crown ashy-brown..... *P. grisea*, ♂, p. 353.
  *b*. Forehead white, crown blackish ..... *P. frontalis*, ♂, p. 355.
B. Lower plumage not blackish.
  *c*. Upper plumage greyish-brown ..... *P. grisea*, ♀, p. 354.
  *d*. Upper plumage sandy-grey ..... .... *P. frontalis*, ♀, p. 356.

### (1245) **Pyrrhulauda grisea.**

THE ASHY-CROWNED FINCH-LARK.

*Alauda grisea* Scop., Del. Flor. et Faun. Insubr., ii, p. 95 (1786) (no locality) (Ginge, South Arcot District).
*Pyrrhulauda grisea*. Blanf. & Oates, ii, p. 341.

**Vernacular names.** *Diyora*, *Duri*, *Dabhak-churi*, *Jothauli* (Hind.); *Chat-bharai*, *Dhula-chata* (Beng.); *Poti-pichike*, *Piyada-pichike* (Tel.); *Gotowli* (Mir-shikari, Bihar); *Gomaritta* (Cing.); *Vannam padi*, *Pullu* (Tam.).

**Description.—Male.** Upper plumage ashy-brown, each feather margined with pale grey; forehead and crown appearing much paler owing to the dark bases being concealed; tail dark brown, the central tail-feathers very broadly edged with whitish-brown or white; outermost tail-feathers dull white on outer web and whitish-brown on terminal half of inner web; wing-coverts and quills dark brown edged with pale grey, almost white on the former; lores, face, a broad supercilium to the nape, chin, throat, sides of neck, breast, abdomen and under tail-coverts dark chocolate-brown, the head-parts practically black; ear-coverts and cheeks white mixed with fulvous; sides of body ashy-grey mixed with dark brown; axillaries and under wing-coverts deep chocolate.

**Colours of soft parts.** Iris dark brown; bill bluish flesh-colour to pale plumbeous; legs and feet livid to brownish-fleshy.

**Measurements.** Total length about 135 mm.; wing 74 to 79 mm.; tail 41 to 46 mm.; tarsus 15 to 16 mm.; culmen 9 to 10 mm.

Fig. 72.—Head of *P. grisea*.

**Female.** Has the black of the head and lower parts replaced by pale brownish-fulvous; the grey margins to the upper parts are less obvious and the forehead is no paler than the back; the fore-neck, breast and flanks are faintly streaked with darker brown.

**Nestlings** are more rufescent above and each feather has black marginal bars; the feathers of the wing are broadly edged with pale rufous and the lower parts are dull fulvous, marked with brown on fore-neck and breast.

**Distribution.** The whole of India, except the North and West Punjab, from the Himalayas to Ceylon and from Sind to extreme Eastern Bengal and Assam.

**Nidification.** The breeding-season of this little Finch-Lark is very extended, but there seem to be two periods during which most broods are raised. The first is from February to early May before the rains commence and the second from August to October, but eggs have been found in practically every month of the year. In Ceylon the season seems to be more restricted, eggs nearly always being laid from the middle of April to early July. The nest is just a little cup made of fine grasses and often lined with wool, cotton-down or the flowering ends of grasses. Like all the Finch-Larks there is nearly always a small wall of stones,

dry earth, bits of brick or some other similar material placed round and often also under the nest, but a feature of this little nest is its extraordinary neatness, so that, as Wait remarks, they look like the perfect hemispherical sockets in a bagatelle board. Usually they are built under the protection of a tuft of grass or weed but sometimes they are placed well out in the open with no protection whatsoever. The eggs generally number two, but three is not uncommon and I have one of four in my collection taken by Currie at Bolaram. They are like the eggs of the other Finch-Larks but typically longer in shape and more yellowish-brown in tone as a series. One hundred eggs average 19·1 × 13·7 mm.: maxima **20·2** × 14·5 mm. and 19·8 × **14·7** mm.; minima **16·0** × 13·2 and 17·0 × **12·5** mm.

**Habits.** This little Lark is found wherever there are wide open spaces not too wet, for it frequents alike sandy uplands, cultivation and grass-lands. Wherever found it is resident, though it may move locally from some of its more low-lying haunts during the wettest season. It is a very active little bird on the ground but not strong on the wing, though during the breeding-season it constantly soars into the air for a short distance, singing as it does so and then drops almost perpendicularly to earth again. It feeds principally on grass-seeds but, like so many other seed- and fruit-eating birds, will greedily eat termites when these are on the wing.

## Pyrrhulauda frontalis.

*Pyrrhulauda frontalis* Bonaparte, Consp. Av., i, p. 512 (1850).

Type-locality: Africa.

The typical African form differs from our Indian bird in its paler, more sandy upper plumage, especially marked in the female. There are also other minor differences.

## (1246) Pyrrhulauda frontalis affinis.

THE INDIAN BLACK-CROWNED FINCH-LARK.

*Pyrrhulauda affinis* Blyth, Ibis, 1867, p. 185 (Madras, *in errore*; Karachi, *Ticehurst*).
*Pyrrhulauda melanauchen.* Blanf. & Oates, ii, p. 343.

**Vernacular names.** *Duri*, *Dabhak-churi* (Hind.).

**Description.—Male.** Forehead white; whole crown and nape chocolate-black; remainder of plumage like that of *P. grisea* but paler and more sandy-grey; the ear-coverts are nearly pure white.

**Colours of soft parts.** Iris brown; bill pale horny, darker on the culmen, paler and bluish on the lower mandible; legs and feet pale whity-brown.

**Measurements.** Wing 78 to 83 mm.; tail 46 to 49 mm.; tarsus 16 to 17 mm.; culmen 10 to 11 mm.

**Female.** Similar to that of the preceding bird but paler and more sandy above and with the lower breast and abdomen almost pure white; the streaks on the lower plumage are still more indistinct.

**Young birds** are paler and more sandy above than are those of *P. grisea.*

**Distribution.** Sind and the Punjab, as far East as the Jumna.

**Nidification.** Exactly the same as that of the preceding Finch-Lark. Scrope Doig found the Black-crowned Finch-Lark breeding in large numbers in Sind, evidently in communities, for in one place in the desert about 10 miles from Narra he found over twenty nests with eggs. Here a considerable growth of grass had sprung up after some local rain and the birds had taken advantage of this to build their nests, placing them on the North side of tufts of grass so as to shelter them from the hot winds. They seem to lay only two eggs and the breeding takes place, according to Scrope Doig, in February and early March, the end of May and early June and, again, in August and September. Lindsey Smith and Ticehurst both found it breeding about May in the sand-hills near Karachi. The eggs are not distinguishable from those of the Ashy-crowned Finch-Lark.

**Habits.** "It is a true desert bird and moves about locally as its food-supply becomes exhausted; this consists of seeds of desert-plants, chiefly grasses. It is a sociable bird, even in the breeding season flocks of ten to fifty individuals being often met with. It is somewhat local in its distribution and, unless one knows a favoured spot, one may wander far and never see it at all. It is resident.

"The male has a typical Lark-like soaring flight." (*Ticehurst.*)

# Family ZOSTEROPIDÆ.

The birds of this group—in India all belonging to the one genus *Zosterops*—have been included by various authors and ornithologists in different families, though they are undoubtedly difficult to place definitely in any one of these. The genus has external and superficial characters which would seem to ally it with many other families but these are accompanied by so many contradictory characters in our Oriental species that it is advisable to place it in a family by itself.

In our Oriental species of *Zosterops* the bill is slender and small and about half the length of the head; the culmen is curved throughout its length, the edges of the commissure are smooth and the nostrils are covered with a large membrane; the tarsi are long and fairly stout but not adapted to terrestrial habits; the tongue is protractile and furnished with two brushes of curiously stiff, horny fibres.

The wing is long and of ten primaries, the first very minute but always visible if carefully searched for; the tail is short and square, varying in length in the different species.

## Genus **ZOSTEROPS.**

*Zosterops* Vigors & Horsf., Trans. Linn. Soc., xv, p. 235 (1827).

Type, *Zosterops cœrulescens* Lath. (Australia).

The numerous races into which each species of *Zosterops* is divided often approach extemely closely subspecies of other species, which renders a clear description of them very difficult. The characters used in the key given below will, however, probably suffice to enable the student to discriminate between them.

### *Key to Species.*

A. Chin and throat bright yellow.
  *a.* Abdomen entirely grey, or with a mere trace of yellow. Tail long, 33 to 37 mm.; black strongly suffused with green .... *Z. palpebrosa*, p. 358.
  *b.* Abdomen with yellow central streak. Tail short, 30 to 32 mm.; practically all black with but little tinge of green.... *Z. aureiventris*, p. 364.
  *c.* Abdomen yellow all over ..... *Z. siamensis*, p. 364.
B. Chin and throat pale lemon-yellow ..... *Z. simplex*, p. 363.
C. Chin and throat dark greenish-yellow .... *Z. ceylonensis*, p. 366.

## Zosterops palpebrosa.

*Key to Subspecies.*

A. No yellow streak down centre of abdomen.
  *a*. Culmen 11 mm. or over.
    *a'*. Upper plumage greenish-yellow, the green tint dominant but not dark.. *Z. p. palpebrosa*, p. 358.
    *b'*. Upper plumage darker greenish .... *Z. p. nicobariensis*, p. 362.
  *b*. Culmen 10 mm. or under.
    *c'*. Upper plumage greenish-yellow, the yellow dominant; breast and flanks grey ..... *Z. p. elwesi*, p. 360.
    *d'*. Upper plumage still brighter; breast and flanks very pale ..... *Z. p. egregia*, p. 361.
B. A yellow streak down the centre of the abdomen ..... *Z. p. cacharensis*, p. 361.

### (1247) Zosterops palpebrosa palpebrosa.

THE INDIAN WHITE-EYE.

*Sylvia palpebrosa* Temm., Pl. Col., 293, fig. 3, 1824 (Bengal; Cuttack, Orissa).
*Zosterops palpebrosa*. Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** None recorded.

Fig. 73.—Head of *Z. p. palpebrosa*.

**Description.** A ring round the eye white; lores and a patch under the eye black; whole upper plumage, wing-coverts and edges of wing-quills bright golden greenish-yellow; wing-coverts on concealed portions and inner webs of primaries and secondaries blackish-brown; chin, throat and extreme upper breast bright yellow, the colour of the breast grading into the pale grey of the lower breast and flanks; abdomen paler and, in some specimens, smeared with bright pale yellow; under tail-coverts yellow; tail-feathers dark brown edged with yellowish-green and the central pair suffused with the same, axillaries and under wing-coverts silky-white.

**Colours of soft parts.** Iris golden-brown to hazel; bill black, the base of the lower mandible bluish-plumbeous; legs and feet dark plumbeous or bluish-slate, the claws dark brown.

**Measurements.** Total length about 120 mm.; wing 52 to 57 mm.; tail 33 to 37 mm.; tarsus about 15 mm.; culmen 11 to 12 mm.

**Distribution.** Bengal, Orissa, E. Central Provinces and Southern India, including all the hilly country from Mysore Southward both to the East and West.

**Nidification.** Over the greater portion of its range the Indian White-Eye breeds in the months of April, May and June but nests with eggs in them have been taken in every month from January to September. In the Nelliampathy Hills Kinloch found them breeding freely in March whilst in the Nilgiris most eggs are laid in February and March. They build in gardens and compounds, open country with scattered bushes and hedges, thin secondary jungle in deserted cultivation and also, though less often, in small patches of evergreen-forest. The site selected varies greatly; many nests are built on bushes quite low down, between three and six feet from the ground; others are on taller trees and bushes up to some twenty feet or so, whilst in a few instances they may be built in lofty trees over fifty feet from the ground. Wherever they are built they are, in nine cases out of ten, placed in small horizontal forks, these being wound round with the material so that the nest hangs as a cradle between. The nest itself is a beautiful, deep little cup, very neat and compact, made of soft shreds of grass, tow-like fibre and pliant roots, more or less mixed with down, moss, spiders' egg-bags, etc. and always well finished off with a quantity of spiders' webs. The lining is of the finest dry grass-stems or grass ends. The number of eggs laid is generally two, less often three. In colour they vary from a faint skim-milk blue to a blue almost as dark as that of a Hedge-Sparrow's egg but they fade very quickly after they are laid and still more quickly once they are blown. The surface is close and fine but, normally, quite glossless and there are never any markings. Forty eggs average 15·4 × 11·5 mm: maxima **18·2** × 12·0 and 17·2 × **12·1** mm.; minima **13·5** × 10·9 and 14·0 × **10·3** mm.

**Habits.** The Indian White-Eye is common throughout the Plains and ascends the hills of Southern India to their summits. It frequents practically any kind of open country and is quite common in the smaller *sholas*, or spinneys, which fill the bottoms of so many of the hollows in the Nilgiri Hills. It is never, however, found far in the interior of the bigger forests. In the non-breeding season it associates in flocks of some size, searching for its insect-food in the branches of the higher trees. Here it flutters from one branch to another, now probing some flower for tiny insects, now clinging to the under surface of a twig and exploring the lower sides of each leaf for its prey. Whilst thus engaged it certainly does look very much like a Titmouse but it is even more active and certainly more restless than the Tits are. The only notes I have heard them utter is a constant twittering when hunting in flocks and a rather shrill little trill, only indulged in when the birds are in pairs and breeding. Their diet is exclusively insectivorous.

## (1248) Zosterops palpebrosa elwesi.

THE NORTHERN WHITE-EYE.

*Zosterops palpebrosa elwesi* Stuart Baker, Ibis, 1922, p. 145 (Sikkim).
*Zosterops palpebrosa.* Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** None recorded.

**Description.** Differs from *Z. p. palpebrosa* in being very much brighter above, more yellow and less green as well as decidedly smaller.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 49 to 53 mm.; bill 8 to 9·5 mm. (in one 10 mm.).

**Distribution.** West-Central Provinces, Rajputana, North-West India and Himalayas to East Assam, North Shan States and Kauri-Kachin Hills.

**Nidification.** The principal breeding months of this White-Eye are May and June, but in Assam Coltart and I found more nests in July and August after the first heavy rains had fallen. Casual nests may also be taken in other months but the season does not seem to be so prolonged as that of the preceding race. The nest is similar to that of the Indian White-Eye and, like that of that bird, may be found at any height from one to sixty feet from the ground but, undoubtedly, most birds build between three and five feet up in bushes. A curious nest recorded by Marshall was lined with feathers but this was quite abnormal, the usual lining being of fine grass or fibres as in the nests of the other races. The number of eggs laid is generally three, often two or four. In appearance they are indistinguishable from those of the other races and one hundred eggs average 15·0 × 11·6 mm: maxima **17·2** × 12·0 and 15·2 × **12·3** mm.; minima **13·9** × 11·1 and 14·3 × **10·9** mm.

Thompson found this little bird feeding its young on the ripe fruit of a bush locally known as *Khoda* or *Chumroor* (*Ehretia brevis*), a very curious trait in an insectivorous species.

**Habits.** The Northern White-Eye is resident throughout the plains of Northern India and in Summer a large number of birds breed in the Himalayas up to at least 7,000 feet, both Dodsworth and Jones having taken many nests in Simla and the adjacent States. About Mussoorie they are common up to 5,000 feet and round about Murree up to 6,000 feet or over. In the Winter they collect in flocks, like the other subspecies do, and they differ in no way from them in voice, flight or food.

ZOSTEROPS P. CACHARENSIS, ¾ life size
The Cachar White-eye

## (1249) Zosterops palpebrosa egregia.

THE SMALL CEYLON WHITE-EYE.

*Zosterops egregia* Madarasz, Ann. Mus. Budapest, ix, 1911, p. 422, pl. xvi, fig. 1 (Ceylon).
*Zosterops palpebrosa.* Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** *Mall-kurruba* (Cing.).

**Description.** Very similar to the preceding race but rather larger and much paler, almost albescent below; the upper plumage is still more yellow, the rump and forehead being practically pure yellow.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 54 to 56 mm.; culmen about 9 to 10 mm. only.

**Distribution.** Ceylon and the Laccadives.

**Nidification.** According to Wait the breeding-season of this bird is "mainly from June to August" but Stewart took several nests in May also. Wait says that "The nest is a dainty little cup of tendrils, fine grass stalks, and moss, woven together with cobwebs and generally lined with a little vegetable down. It is placed in the slender fork of a small branch about six to twenty feet from the ground." It lays either two or three eggs, generally the former, which are of the usual pale blue. Wait's eggs average 15·7×11·6 mm. but eleven eggs in my own collection average only 15·2×11·4 mm.: maxima **16·1**×12·1 and 15·5×**12·3** mm.; minima **14·1**×11·3 and 14·6×**10·7** mm.

**Habits.** Very similar to those of the other races of this species. It is a sociable little bird, feeding among the higher branches of trees in flocks of some size. Its diet is mainly insectivorous but, according to Wait, it also feeds on buds and flowers; possibly the greater part of the latter is consumed together with the insects which infest them but some part at least of the White-Eye's food seems to be vegetarian. The Small Ceylon White-Eye is found practically throughout the plains of Ceylon, ascending the hills up to some 4,000 feet. It frequents both forest and open country; the wildest parts of the former and gardens, compounds and villages alike.

## (1250) Zosterops palpebrosa cacharensis.

THE CACHAR WHITE-EYE.

*Zosterops palpebrosa cacharensis* Stuart Baker, Ibis, 1922, p. 144 (Gunjong, N. Cachar).
*Zosterops palpebrosa.* Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** *Daotisha-gophu-pi* (Cachari).

**Description.** Closely resembles the typical form but is smaller and has a distinct yellow streak down the centre of the abdomen.

In this respect it is very like the pale Southern form of *auriventris* but has the long greenish tail of this group.

**Colours of soft parts.** Iris bright hazel; bill bluish-plumbeous, darker on the culmen and black at the tip; legs and feet bluish to dark plumbeous; the claws dark horny-brown.

**Measurements.** Wing 49 to 54 mm.; culmen about 9 to 10 mm.

**Distribution.** Assam, South of the Brahmaputra River, Manipur, Lushai, Tippera, Chittagong and the Chin Hills.

**Nidification.** The Cachar White-Eye breeds from the end of April to the end of June and, normally, never seems to have two broods. It breeds from the level of the Plains up to at least 6,000 feet, making a nest which in no way differs from that of the other races except, perhaps, in having more soft grass and less other material in its composition. As a rule it builds low down in bushes, more often than not less than five feet from the ground but occasionally at great heights. The eggs number three or four: I have once seen five, and two only are sometimes incubated. Sixty eggs average 14·8 × 11·6 mm.: maxima **15·7** × 12·0 and 15·1 × **12·3** mm.; minima **13·5** × 11·2 and 14·3 × **10·6** mm.

**Habits.** Those of the species. This White-Eye frequents almost any kind of country, evergreen-forest, grass-lands, thinly dotted with oak and other deciduous trees, bamboo-jungle, the dense scrub-jungle which grows up in abandoned cultivation and also gardens and orchards. Perhaps its favourite resorts are forests where there are flowering trees and gardens full of flowers; doubtless these are also the favourite haunts of so many insects upon which it feeds. The natives keep these little birds as pets and in captivity they are fed largely on plantains, boiled and mashed rice and sugar and millet but they soon die if not given a little meat or insect-food.

## (1251) Zosterops palpebrosa nicobariensis.

THE NICOBAR WHITE-EYE.

*Zosterops nicobariensis* Blyth, J. A. S. B., xiv, 1845, p. 563 (Nicobars).
*Zosterops palpebrosa.* Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** None recorded.

**Description.** Very similar to *Z. p. palpebrosa* from Southern India but much darker. The bill is as large as in that form. I cannot separate Richmond's *Z. ventralis* from Car Nicobar from this race.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 52 to 55 mm.; culmen 11 to 12 mm.

**Distribution.** Andamans, Nicobars and Car Nicobar.

**Nidification.** Similar to that of the other subspecies. Messrs. Anderson, Wickham and Osmaston took nests in May but the last-mentioned says that they are generally late breeders and

that most eggs are laid in June and July. Two only are laid. Eleven eggs average 15·9 × 12·2 mm.: maxima **16·5** × 12·0 and 16·0 × **12·5** mm.; minima **14·9** × 12·0 and 16·3 × **11·9** mm.

**Habits.** Those of the species generally. A common bird in the Andamans and especially round Port Blair. The "intestines" of a bird dissected by Blyth contained numerous hard black seeds about the size of No. 8 shot.

## Zosterops simplex.

*Zosterops simplex* Swinhoe, P. Z. S. 1863, p. 203.

Type-locality: China.

The typical form differs from the Burmese bird in being rather darker above and in having a rather larger bill.

## (1252) Zosterops simplex peguensis.

THE PEGU WHITE-EYE.

*Zosterops palpebrosa peguensis* Stuart Baker, Ibis, 1922, p. 144 (Moulmein).
*Zosterops palpebrosa*. Blanf. & Oates, i, p. 214 (part).

**Vernacular names.** None recorded.

**Description.** Differs from all the preceding forms of *Zosterops* in its very pale lemon-yellow throat and under tail-coverts. From *Z. s. simplex* it differs in its much brighter upper parts as well as in having a smaller, less coarse bill. In colour it is like the *palpebrosa* group but much darker above, where it is olive-green rather than olive-yellow.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 53 to 58 mm.; culmen 9 to 10 mm.

**Distribution.** Southern Burma from Pegu North and East to Karenni and Maymyo. Birds from Siam, Yunnan, to Hainan and Formosa are referable to Robinson and Kloss's *Z. s. williamsoni*, a rather darker bird above and pure white below.

**Nidification.** Two nests taken by Macdonald near Thayetmyo on the 17th and 26th of June are described by him as exactly like those of the Indian White-Eye. They contained 3 and 4 eggs respectively. Twenty eggs taken by Mackenzie and Macdonald average 15·6 × 11·8 mm.: maxima **17·0** × 12·0 and 16·7 × **12·2** mm.: minima **14·0** × 11·0 and 14·3 × **10·4** mm. The eggs are of the same pale blue colour as those of the other races.

**Habits.** Similar to those of the other White-Eyes but it is rather more exclusively a forest bird than most.

## (1253) Zosterops siamensis.

THE SIAMESE WHITE-EYE.

*Zosterops siamensis* Blyth, Ibis, 1867, p. 34 (Siam); Blanf. & Oates, i, p. 216.

**Vernacular names.** None recorded.

**Description.** Differs from all other species of Indian *Zosterops* in having the whole lower plumage bright yellow; the axillaries and under wing-coverts are yellowish-white; there is the usual white eye-ring and black loral patch and the upper plumage is bright olive-yellow.

**Colours of soft parts.** Iris pale yellowish-brown; bill black, the base of the lower mandible bluish-slaty; legs and feet bluish-plumbeous.

**Measurements.** Wing 50 to 53 mm.; tail 36 to 37 mm.; tarsus 15 to 16 mm.; culmen 10 to 11 mm.

**Distribution.** The whole of Burma from Mt. Victoria in the Chin Hills to Southern Tenasserim, Siam and Cochin China.

**Nidification.** Two nests taken by my collector in Tenasserim were built on high trees in comparatively open grass-country. The nests were the usual neat little cups made of grass, moss and roots, mixed with a curious fibrous material which looks like shreds of the inner bark of some tree. The whole of these materials are matted with spiders' webs. The two nests were taken on the 24th and 27th March and contained, respectively, three and four eggs which are of the usual colour and description, measuring about 14·9 × 11·5 mm.

**Habits.** Davison found these birds both in the Mangrove-swamps about Thaton and again at the top of Muleyit Mountain. Like the Indian White-Eyes it was associating in flocks and hunting the higher branches of the trees for food. It apparently avoids the interior of the forests, keeping either to the outskirts or to clumps of trees on the grass-lands. Its constant little twitter is said to be just like that of *Z. p. palpebrosa*.

## Zosterops aureiventris.

Hartlaub's name *lateralis*, although long antedating Hume's name *aureiventris*, cannot be used for this bird as it is preoccupied by Latham's *Sylvia lateralis*, applied by him to the bird now known as *Zosterops cœrulescens*. Hume's name therefore stands.

*Key to Subspecies.*

A. Flanks definitely pale grey; yellow on abdomen extensive ..... *Z. a. aureiventris*, p. 365.
B. Flanks almost white; yellow on abdomen less extensive ..... *Z. a. mesoxantha*, p. 365.

## (1254) Zosterops aureiventris aureiventris.

HUME'S WHITE-EYE.

*Zosterops aureiventer* Hume, Str. Feath., vi, 1878, p. 519 (Tavoy).
*Zosterops aureiventris.* Blanf. & Oates, i, p. 215.

**Vernacular names.** None recorded.

**Description.** Differs from all forms of *palpebrosa* in its short black tail, measuring 30 to 32 mm. as against 34 to 37 mm.; the green margins to the tail-feathers are absent or obsolete, so that the tail is practically wholly black; there is a definite broad yellow streak down the centre of the breast and abdomen and the flanks are pale grey, albescent where they meet the yellow stripe.

**Colours of soft parts.** Iris hazel or brown; bill plumbeous, the tip and culmen almost black; legs and feet dark blue-grey.

**Measurements.** Wing 51 to 52 mm.; tail 30 to 32 mm.; tarsus 14 to 15 mm.; culmen 10 to 11 mm.

**Distribution.** "A coastal form ranging from Tenasserim along the coast of the Malay Peninsula to Banka, and possibly Java and the low country of Eastern Sumatra" (*Robinson & Kloss*). I cannot separate *Z. buxtoni* from the typical race. The type-specimens are bleached by being in spirit but other specimens are in no way different from the Tavoy birds.

**Nidification.** A series of eggs taken for me by Kellow near Perak are not distinguishable from those of the other species of White-Eye. Twenty eggs average 15·5×11·8 mm.: maxima 16·3×12·1 and minima 14·1×11·3 mm.

They breed from February to May but principally in the latter month. The nests were all taken from bushes or trees standing in the thick secondary growth of deserted cultivation; some were built in low bushes and some in high trees up to 30 feet from the ground. The nests which were sent me are like those of the Indian White-Eye, very neat little cups of grass, roots and cotton-down felted together with spiders' webs.

**Habits.** Practically nothing recorded but apparently they do not differ from those of the other White-Eyes.

## (1255) Zosterops aureiventris mesoxantha.

THE KAREN WHITE-EYE.

*Zosterops mesoxantha* Salvadori, Ann. Mus. Civ. Genova, vii, 1889, p. 396 (Karen Hills).
*Zosterops aureiventris.* Blanf. & Oates, i, p. 215 (part).

**Vernacular names.** None recorded.

**Description.** A trifle darker than the preceding bird and with still paler grey flanks. It appears also to have less yellow on the abdomen.

**Colours of soft parts** as in the other forms.

**Measurements** as in the preceding race.

**Distribution.** The mountains of Central and Eastern Burma from Karenni to the extreme South and also the mountains of Southern Siam South to Selangor.

Messrs. Robinson and Kloss have pointed out that the apparent overlapping in area of the two supposed forms of *aureiventris* is due to one being a bird of the lowlands and sea-coasts and the other a bird of mountains of some height. If this is remembered it seems possible to separate the two, though not very satisfactorily. *Z. tahanensis* becomes, however, a synonym of this form.

**Nidification.** Nothing recorded.

**Habits.** This seems to be a form of *aureiventris* restricted to the higher mountains. The series collected from Karenni were all obtained at 4,700 feet upwards. Beyond the fact that they keep to heavy forest nothing has been recorded as to their habits.

## (1256) Zosterops ceylonensis.

THE LARGE CEYLON WHITE-EYE.

*Zosterops ceylonensis* Holdsworth, P. Z. S., 1872, p. 459, pl. xx, fig. 2 (Ceylon); Blanf. & Oates, i, p. 215.

**Vernacular names.** *Mull-kurrala* (Cing.).

**Description.** A small ring round the eye white; lores dusky black, generally produced back as a black line under the eye; whole upper plumage, wing-coverts and edges of quills and tail-feathers olive-green, with a slight yellow sheen on the upper tail-coverts and rump; chin, throat and upper breast dull oily-yellow, shading into the green of the sides of head and neck; lower breast and abdomen greyish-white, paler in the centre and often with signs of a yellow streak; under tail-coverts yellow; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris hazel-yellow, light brown or reddish-brown; bill black, the base of the lower mandible pale slaty; legs and feet pale plumbeous-grey or bluish-slaty.

**Measurements.** Wing 53 to 59 mm.; tail 39 to 43 mm.; tarsus about 17 to 18 mm.; culmen about 11 to 12 mm.

**Distribution.** Ceylon, in the hills above 1,500 feet. It has been recorded from the Nilgiris by Mr. D. G. Hatchwell, who says that he saw several birds of this species and shot one (Journal Bombay Nat. Hist. Society, xv, p. 726.) This record has never been confirmed by further specimens being obtained in that naturalist-haunted district and was probably due to a wrong identification.

**Nidification.** Wait says that this White-Eye breeds in March, April and May and that the nest and eggs closely resemble those

of the Small Ceylon White-Eye, the eggs averaging 16·2 × 11·5 mm. Three eggs in my own collection average 16·4 × 12·2 mm. They were taken at an elevation of about 4,500 feet on the 7th March.

**Habits.** Legge says that this bird is common on the hill-ranges over 4,000 feet, still numerous down to 3,000 feet and that it is found on various Coffee Estates down to 2,000 and once was obtained at 1,500 feet. Wait, however, says that it may be considered rare below 3,000 feet. The birds frequent both the interior and outskirts of forests and well-wooded tracts and seem to be very common in rubber- and tea-plantations at the higher elevations. They collect in flocks in Winter though Holdsworth believed these to consist of males only, the females remaining solitary at this time. They frequent the highest trees and lowest bushes alike and Legge says that their food very largely consists of buds. They are extremely active energetic little birds, constantly on the move and adopting a very follow-my-leader mode of progression through the forest. They are very bold and fearless and I saw them feeding within a few feet of me at Nuwara Eliya, quite undisturbed by my presence and constantly uttering a rather loud chirp, quite different from the high "pip pip" or musical twittering call of the Small Ceylon White-Eye.

## Family CHALCOPARIIDÆ.

This family contains a single genus of one species which seems to show affinities, structural and biological, with several other very divergent families and it is therefore difficult to know exactly where to place it. In its breeding habits it is very close to the Sunbirds, *Nectariniidæ*, its nests and eggs being in many respects very like those of the genus *Cyrtostomus*; the tongue, however, is bifid and is provided with a little brush on each tip. It is divided from the *Dicæidæ* by having no serrations on the edges of the mandibles. Like *Zosterops* it is gregarious, haunting bushes and flowers in its search for its insect-food but its nidification is utterly different. On the whole a position between the White-Eyes, *Zosteropidæ*, and the Sunbirds, *Nectariniidæ*, seems most suitable.

In the *Chalcopariidæ* the wing has ten primaries, the first equal to half the second, which is shorter than the third; the fourth and fifth are longest but very little longer than the third; the bill has the culmen and commissure gently curved throughout but the lower line of the lower mandible practically straight; the tail of twelve feathers is very slightly graduated; the tarsus is short and scutellated; the tongue bifid and furnished with little tufts; the sexes are dissimilar.

### Genus CHALCOPARIA.

*Chalcoparia* Cabanis, Mus. Hein., i, p. 103 (1850).

Type, *Chalcoparia phœnicotis* Temm. = *singalensis* Gmelin.

The characters of the genus are those of the family.

### Chalcoparia singalensis.

*Key to Subspecies.*

A. The ferruginous of the throat deeper and extending on to the lower breast .... *C. s. singalensis*, p. 368.
B. The ferruginous of the throat paler and not extending beyond the upper breast. *C. s. lepida*, p. 370.

### (1257) Chalcoparia singalensis singalensis.

THE MALAYAN RUBY-CHEEK.

*Motacilla singalensis* Gmelin, Syst. Nat., i, p. 964 (1788) (Ceylon, *in errore*; Malacca, *Oberholser*).
*Chalcoparia phœnicotis*. Blanf. & Oates, ii, p. 373 (part).

**Vernacular names.** *Nok-ka-tate* (Siam).

**Description.—Male.** Whole upper plumage and lesser wing-coverts brilliant metallic green; tail black, edged with metallic green; median and greater coverts black, edged with the same; primary coverts and quills black, edged with purple; lores black; cheeks and ear-coverts metallic copper, bordered by brilliant violet-purple; chin, throat and breast ferruginous; remainder of lower plumage olive-yellow, darker on the flanks; axillaries and under wing-coverts white, tinged with yellow.

**Colours of soft parts.** Iris golden-orange to crimson; bill black, the gape orange and the mouth yellow; legs yellow to greenish-yellow.

**Measurements.** Wing 51 to 55 mm.; tail 39 to 41 mm.; tarsus 14 to 15 mm.; culmen 12 to 14 mm.

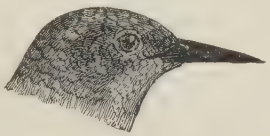


Fig. 74.—Head of *C. s. singalensis.*

**Female.** Similar to the male below but duller and paler; above green, wings and tail black, edged with rufous-yellow on the primaries and secondaries.

**Young birds** are like the female but have the throat and breast all yellow like the abdomen.

**Distribution.** Burma, West and South Siam, Malay States, Sumatra, Java.

**Nidification.** Oates and Herbert are the only ornithologists who have taken the nests and eggs of this bird. The latter describes them as follows:—"The nest is generally built in a lime-bush, at about 4 to 8 feet from the ground and, when hanging beneath the leaves at the end of a branch, is not easily recognized as a nest. It is of quite a distinctive type and the six nests I have taken have all been exactly the same, so there is no mistaking the identity. The portico is a very prominent feature and is nearly as large as the egg-chamber. The nesting material is fibre of varying degrees of coarseness, that of the interior being comparatively fine, whilst that of the outside presents quite a ragged appearance. Cobwebs are extensively used for keeping the numerous threads in their places. The breeding-season is February to July, so probably two broods are reared. I have found three lots of eggs in February and March, young in April, eggs in June and several lots of young in July.

"The eggs are much elongated and slightly pyriform ovals. The ground is cream-colour, with a pinkish tinge in one case, and the greater part of the surface is mottled and clouded with pale

purplish-grey. The markings are sparsely dotted about in the form of specks and spots of purplish-black. Some eggs are finely freckled in purplish-grey, the freckling being confluent on the large end, whilst another pair are heavily marked with purplish-black spots and irregular blurred lines."

The eggs, now in my collection, measure from 16·0 × 11·3 mm. to 17·7 × 12·0 mm.

**Habits.** The Ruby-Cheek is a bird of the plains and lower hills up to about 1,500 feet, rarely ascending as high as 2,500 feet. It frequents both the most dense evergreen-forest and open country, if well-wooded and with ample cover available. About Bangkok Herbert found it round about the town and in the scrub- and bush-jungle surrounding the adjacent villages. Oates also says that it commonly enters compounds, orchards and gardens. "In the non-breeding season it collects in small flocks and hunts for its insect diet both on bushes and trees. It is very active and quick both in flight and in clambering about trees and branches. On trees its actions are similar to those of *Zosterops* and it adopts the same Tit-like attitudes. In flight it is more like the Sunbirds and, like these latter, sometimes hangs poised on its wings as it probes the flowers for insects and honey."

## (1258) Chalcoparia singalensis lepida.

THE INDIAN RUBY-CHEEK.

*Certhia lepida* Lath., Ind. Orn., i, p. 299 (1790) (India, now restricted to Cachar).
*Chalcoparia phœnicotis.* Blanf. & Oates, ii, p. 373 (part).

**Vernacular names.** *Dao-tisha Sundai* (Cachari).

**Description.—Male.** Similar to the preceding bird but with a paler rufous throat and breast and this colour not extending so far on to the lower breast; the abdomen and flanks are generally more yellow, less olive.

**Colours of soft parts** as in the other race.

**Measurements.** Wing 52 to 55 mm.; culmen 12 to 13 mm.

**Female.** Hardly distinguishable from the female of *C. s. singalensis*, but generally a little more green above and with a slightly paler throat and upper breast.

**Distribution.** The whole of the Terai from Sikkim to Eastern Assam; Assam South of the Brahmaputra and Manipur; Tippera, Chittagong, Dacca and Mymensingh in Eastern Bengal.

**Nidification.** The Indian Ruby-Cheek breeds in March and again in June and possibly has two broods in the year. The nest is a pear-shaped, domed affair with a porch over the entrance almost concealing it. It is made entirely of very fine black fibres, I think torn from the bark of palm-ferns, fern-rachides and maidenhair-fern stems, lined with the finest of the same

materials. The nest itself is compact and well built but the materials stick out and hang below the nest so that it looks as if, when first seen, it was a lump of fibre combed out. It measures about 120 mm. high by about 80 to 90 mm. broad. The eggs are always two in number and differ considerably from those described by Herbert as being laid by the Malay Ruby-Cheek. The ground-colour is pure white but in most eggs this is almost entirely obscured by innumerable freckles of dark grey which coalesce and form rings or caps at the larger end. They are, in fact, very like small eggs of the House-Sparrow but they are very fragile and entirely glossless. The few eggs I have seen average 16·9 × 12·05 mm.: maxima **18·3 × 12·3** mm.: minima **16·0 × 11·7** mm.

**Habits.** This beautiful little bird is resident between 1,500 feet and the plains adjacent to the hills but does not seem to wander far from the broken ground. In Cachar I found it keeping much to heavy forest, especially to the sides of foot-tracks, small rivers and similar partly-open spaces where flowers grew in the sun and these in turn attracted insects. At the same time the few nests seen were in thin scrub-jungle growing on the sites of deserted villages and cultivation. The Ruby-Cheek seems to be absolutely fearless of man and the flocks in which they collect will hunt diligently for food on bushes and trees within a few feet of the observer. I have not heard any note other than the constant twitter, not unlike that of the White-Eyes, uttered when feeding.

## Family NECTARINIIDÆ.

In this family the edges of both mandibles are finely and evenly serrated on the terminal half or third of their edges, a character which at once separates them from all other *Passeres* except the *Dicæidæ*. The tongue is tubular; the bill is moderately or very long and more or less cylindrical; the rictal bristles short; the wing is of ten primaries, the first small; the tail has twelve rectrices; the tarsi are slender in most though fairly long, in others short and stronger; they are scutellated; there is one full moult and one partial in the year and the young are like the adult female; the sexes are sometimes alike and sometimes dissimilar.

Fig 75.—Bill of *Anthreptes malacensis* (enlarged), to show serrated edges of mandibles.

*Key to Subfamilies.*

A. Sexes different; plumage of male in part metallic; bill slender..... *Nectariniinæ*, p. 372.
B. Sexes alike; plumage non-metallic ..... *Arachnotherinæ*, p. 413.

### Subfamily NECTARINIINÆ.

The Sunbirds of this subfamily are characterized by a slender bill; by the sexes being different in colour and by the males having bright metallic tints in their plumage whilst the females are dull olive-green or yellow.

*Key to Genera.*

A. Covering membrane of nostril feathered .. CHALCOSTETHA, p. 373.
B. Covering membrane of nostril bare.
*a*. Lower mandible distinctly curved downwards.
*a'*. Males with middle tail-feather lengthened; rump yellow; females green below..... ÆTHOPYGA, p. 374.

*b'*. Both sexes with short rounded tails; females yellow below..... LEPTOCOMA, p. 393.
*b*. Lower mandible straight or nearly so .. ANTHREPTES, p. 408.

## Genus **CHALCOSTETHA.**

*Chalcostetha* Cabanis, Mus. Hein., i, p. 103 (1850).

Type, *Chalcostetha insignis* Jard. = *C. chalcostetha* Jard.

### (1259) Chalcostetha chalcostetha*.

MAKLOT'S SUNBIRD.

*Nectarinia chalcostetha* Jardine, Nat. His., Nect., p. 263 (1843) (E. Indian Is.; restricted to Borneo).
*Chalcostetha insignis*. Blanf. & Oates, ii, p. 345.

**Vernacular names.** None recorded.

**Description. — Male.** Forehead, crown and nape brilliant metallic green; lesser and median wing-coverts, lower back, scapulars, rump and upper tail-coverts the same but nearly always mixed with a certain amount of lilac-purple and sometimes principally of this colour; hind-neck and upper back, lores and sides of the head and neck velvety-black; greater coverts and quills black, edged with purple; tail blackish-blue edged with metallic purple; chin, throat and upper breast metallic copper surrounded by lilac-purple, the latter covering the lower breast, upper abdomen and flanks; lower abdomen, posterior flanks and under tail-coverts smoky-black; pectoral tufts bright yellow; axillaries and under tail-coverts smoky-black.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet dark plumbeous to black.

**Measurements.** Wing 59 to 62 mm.; tail 49 to 55 mm.; tarsus 14 to 15 mm.; culmen about 17 to 19 mm.

**Female.** Upper plumage dull olive-green, the head browner and the feathers of the crown and nape edged with grey; coverts and quills brown, edged with the colour of the back; tail black, all but the central rectrices broadly tipped with white; chin, throat, sides of the head and upper breast pale grey; lower breast, flanks and upper abdomen yellow, paling to whitish on the lower abdomen and vent; under tail-coverts dull yellow, with broad concealed brown centres.

* Oberholser has separated the form from Pagi Is. as "smaller, female with back more greyish, scarcely tinged with olive-green." I cannot separate any of the island birds from those of the Malay Peninsula and larger islands. The colour of the back of the females varies greatly and Oberholser does not give the size of his new race (Smiths. Misc. Coll. 60, p. 17, 1912).

**Young birds** resemble the female.

**Distribution.** Tenasserim to Singapore, Sumatra, Borneo, Java, Palawan and other islands; Siam.

**Nidification.** Maklot's Sunbird is resident throughout its range but there is nothing on record about its breeding. Mr. T. Houwing, however, has found it breeding in great numbers in Java, building its nest in nine cases out of ten at the end of a branch of a rubber-tree in the plantations. At other times it is placed at the end of branches of shrubs or low trees between four and twelve feet from the ground. The nest is pear-shaped and domed, with a porch over the entrance, and is made of small pieces of grass, leaves, feathers, roots and odds and ends of vegetable rubbish. The lining is of vegetable down, sometimes mixed with hair or feathers, but consisting principally of the down from the *Bombax*. The eggs invariably number two; in ground-colour they are pale greenish or greyish stone-colour and they are mottled all over with dull pale purplish-brown with sparse spots and blotches of deep purple, almost black in the centre. Most eggs are laid in May and June but the series sent me by Mr. Houwing were taken in every month from April to the end of September. Thirty eggs average 15·0 × 11·1 mm.: maxima **16·1** × 10·7 and 15·4 × **11·9** mm.; minima **13·9** × 11·1 and 15·0 × **10·3** mm.

**Habits.** This Sunbird appears to be resident both in the plains and lower hills up to about 3,000 feet and is normally a bird of evergreen-forests, though it is sometimes seen in gardens, where the profusion of flowers entice the tiny insects on which it feeds. Where rubber plantations have been opened out the birds resort to them in preference to any other kind of country and find the conditions in them so suitable that they have increased greatly in numbers. Mr. Houwing informs me that where a few years ago these Sunbirds were seen in odd pairs over quite a large extent of country, numerous pairs may now be seen in the course of a short walk through the rubber plantations. The note is said to be a shrill trill and the flight and general habits are much the same as those of other Sunbirds.

## Genus ÆTHOPYGA.

*Æthopyga* Cabanis, Mus. Hein., i, p. 103 (1850).

Type, *Æthopyga siparaja* Raffles.

The genus *Æthopyga* contains those Sunbirds, the males of which have yellow rumps and the central tail-feathers lengthened and narrow on the terminal halves. The females only differ from those of the genus *Leptocoma* in having the lower plumage more green.

In the genus *Æthopyga* the bill is slender and well curved downwards; the nostrils are covered with a bare membrane.

*Key to Species.*

A. Chin and throat crimson ..... *Æ. siparaja*, ♂, p. 375.
B. Chin and throat dark, not crimson.
*a*. Middle tail-feathers red ..... *Æ. ignicauda*, ♂, p. 383.
*b*. Middle tail-feathers green, or violet, or blue.
*a'*. Dark portions of crown not extending to nape.
*a''*. Breast nearly all yellow ..... *Æ. gouldiæ*, ♂, p. 385.
*b''*. Breast nearly all flaming scarlet. *Æ. dabryi*, ♂, p. 387.
*b'*. Dark portion of crown extending to hind neck.
*c''*. Crown, upper tail-coverts and tail steel-blue.
*a*³. Breast black ..... *Æ. saturata*, ♂, p. 388.
*b*³. Breast yellow ..... *Æ. sanguinipecta*, ♂, p. 390.
*d''*. Crown, upper tail-coverts and tail green ..... *Æ. nipalensis*, ♂, p. 391.
C. Chin and throat not metallic.
*c*. No yellow band across rump.
*c'*. Tips of tail-feathers large, white and well-defined.
*e''*. Under tail-coverts greyish .... *Æ. siparaja*, ♀, p. 375.
*f''*. Under tail-coverts yellowish .. *Æ. nipalensis*, ♀, p. 390.
*d'*. Tips of tail-feathers pale and obsolete ..... *Æ. ignicauda*, ♀, p.
*d*. A yellow band across the rump.
*e'*. Upper plumage light green.
*g''*. Culmen under 17 mm. ..... *Æ. gouldiæ*, ♀, p. 385.
*h''*. Culmen over 17 mm. ..... *Æ. saturata*, ♀, p. 389.
*f'*. Upper plumage darker, dull grey-green.
*i''*. Culmen under 16 mm. ..... *Æ. dabryi*, ♀, p. 388.
*j''*. Culmen over 16 mm. ..... *Æ. sanguinipecta*, ♀, p. 390.

## Æthopyga siparaja.

*Certhia siparaja* Raffles, Trans. Linn. Soc., xiii, p. 299 (1820).

Type-locality: Western Sumatra.

The typical form differs from *Æ. s. cara* in having the abdomen and flanks a much darker grey; the female has the upper parts rather darker and the abdomen more yellow.

*Key to Subspecies.*

A. Breast not streaked with yellow.
*a*. Tail metallic purple; central tail-feathers very little longer than the lateral ones.
*a'*. Metallic colour of forehead green, reaching to the posterior crown .... *Æ. s. cara*, p. 376.
*b'*. Metallic colour of forehead purple-blue, confined to anterior crown..... *Æ. s. nicobarica*, [p. 377.

*b*. Tail green; central tail-feathers much longer than lateral ones.
*c'*. Abdomen olive-green. [p. 380.
*a''*. Larger; wing 60 mm. or over .... *Æ. s. mussooriensis*,
*b''*. Smaller; wing under 60 mm. .... *Æ. s. seheriæ*, p. 378.
*d'*. Abdomen grey-green ..... *Æ. s. viridicauda*, p. 381.
B. Breast boldly streaked with yellow ..... *Æ. s. vigorsi*, p. 381.

## (1260) Æthopyga siparaja cara.

THE TENASSERIM YELLOW-BACKED SUNBIRD.

*Æthopyga cara* Hume, Str. Feath., ii, p. 473 (1874) (Tenasserim); Blanf. & Oates, ii, p. 349.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead and crown metallic green, sometimes faintly tinged with violet; lores, nape, sides of head and neck, back, scapulars and lesser wing-coverts crimson; rump bright yellow; upper tail-coverts metallic green mixed with violet-purple: tail black glossed with violet-purple, sometimes mixed with metallic green: greater coverts and wing-quills brown edged with greenish-yellow; a long, narrow moustachial streak violet; chin, throat and breast scarlet-crimson, brighter and lighter than the back; abdomen, posterior flanks, vent and under tail-coverts grey very slightly washed with olive.

**Colours of soft parts.** Iris crimson-brown or dark brown; bill above dark horny-brown, below yellowish-horny; legs and feet dark brown.

**Measurements.** Wing 53 to 57 mm.; tail 40 to 48 mm.; tarsus 14 to 15 mm.; culmen about 14 to 15 mm. All females of Sunbirds are a little smaller than the males.

**Female.** Whole upper plumage olive-green, the feathers of the crown edged with ashy and with almost concealed dark centres, the back and more especially the rump with a strong tinge of yellow; tail-feathers ashy-black, the central feathers edged and suffused with green, the lateral ones with dull white tips.

**Young birds** are like the female.

**Distribution.** Southern Burma, from Rangoon to the extreme South of Tenasserim; South and South-West Siam.

**Nidification.** With the exception of Hopwood apparently no collector has been successful in finding this Sunbird's nest. Two nests, each containing one egg, taken by this gentleman on the 16th of January and the 18th of February, are described by him as "in each case resembling the nest of *Æ. seheriæ*. They were neatly woven, pear-shaped with no portico and thickly lined with silky papyrus, probably of *Calotropis* sp." The two eggs differ very greatly in appearance. One has the ground-colour pale pink and is profusely speckled all over with light brick-red, the other has the ground very pale greyish-yellow and is speckled in the

same manner with rather darker grey. The two eggs measure respectively 15·2 × 11·1 and 14·9 × 10·6 mm. In a letter Hopwood informs me that they were pendent from small branches of bushes about three or four feet from the ground and that they were taken close to Tavoy.

**Habits.** This Sunbird is found in open country, secondary growth and in gardens; very rarely it has also been seen in the interior of evergreen-forests. It feeds generally low down in flowering bushes and shrubs, occasionally on flowering trees and constantly on the coconut-palms whenever these are in flower. Though nowhere very common, Hopwood says they were fairly numerous in Tavoy, haunting the beds of flowering plants in gardens, sometimes two or three pairs in company. They feed both on nectar and the tiny insects which the nectar attracts and often hover, like Humming-birds, before the flower from whose chalice they are feeding. They have a rather shrill little twitter but no song.

## (1261) Æthopyga siparaja nicobarica.

THE NICOBAR YELLOW-BACKED SUNBIRD.

*Æthopyga nicobarica* Hume, Str. Feath., i, p. 412 (1873) (Nicobars); Blanf. & Oates, ii, p. 350.

**Vernacular names.** None recorded.

**Description.—Male.** Differs from *Æ. s. cara* in having the tail more violet-purple with no green tinge and the upper tail-coverts the same; the metallic colour of the head violet-purple and restricted to the forehead and anterior crown.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 50 to 52 mm.; tail 40 to 45 mm.; culmen 17 to 18 mm.

**Females.** Not distinguishable from the Tenasserim Yellow-backed Sunbird, but often have the throat marked with a certain amount of red.

**Distribution.** Nicobar Islands.

**Nidification.** Davison was shown a nest of this Sunbird taken by Stoliczka which had been fastened "to the very end of a long, narrow pandanus leaf, about 30 feet from the ground." I can trace nothing further than this about its nesting habits.

**Habits.** Very similar to those of the preceding bird and it is said, like that bird, to be very partial to the coconut-palms as hunting-ground for food though otherwise it frequents low flowering shrubs in preference to trees. It has no song but makes the usual twittering notes of the genus when feeding and flying. It appears to keep to the open country and the outskirts of forest and does not enter the latter to any distance.

## (1262) Æthopyga siparaja seheriæ.

THE INDIAN YELLOW-BACKED SUNBIRD.

*Nectarinia seheriæ* Tickell, J. A. S. B., ii, p. 577 (1833) (Seheria, Borabhum).
*Æthopyga seheriæ.* Blanf. & Oates, ii, p. 348.
*Æthopyga andersoni.* Blanf. & Oates, ii, p. 349.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead and crown metallic green; extreme hinder crown and nape dull greenish-brown; sides of the head, neck, back, scapulars, lesser and median wing-coverts dark crimson; rump bright yellow; upper tail-coverts and central tail-feathers metallic green, lateral tail-feathers black suffused with purple-violet and edged with metallic green; greater coverts and quills dark brown edged with olive-yellow; a long moustachial streak metallic violet; above the streak, the chin, throat and breast deep scarlet-crimson, never so dark as in the upper plumage; remainder of lower plumage olive-green, more yellow in some individuals than in others.

The principal difference between this and the succeeding forms and those preceding it is the darker crimson hue below, the green instead of purple tail and the brown nape.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 52 to 59 mm.; tail 55 to 74 mm.; tarsus about 14 to 16 mm.; culmen about 17 to 19 mm.

**Female.** Differs from the females of the preceding races in being more yellowish below and in its longer tail.

**Young birds** are like the female.

**Distribution.** The foot-hills of the Himalayas from the Kuman Terai to the extreme East of Assam and Eastern Bengal. The dividing line between this and the next form cannot be given with much accuracy but it is possible that birds breeding above 5,000 feet throughout the Himalayas should all come under *mussooriensis*. The present race, *seheriæ*, was originally taken by Tickell in Seheria, Borabhum; Ball saw an *Æthopyga*, almost certainly of this species, in Singhbhum; and D'Abreu records a male from Laugher, 1,933 feet, in the district of Balaghat, Central Provinces.

Naini Ta

On the material available I cannot separate Hodgson's Nepal bird, *miles*, from the typical form. It is true that all his specimens have the underparts a very dark dull grey, practically without any olive-green, but this is a feature in all Hodgson's birds due, apparently, to his method of curing the skins. Until fresh and better skins are available for comparison it would be unsafe to maintain it as separate.

*Æthopyga andersoni* of Oates is founded on some specimens from the Shan States and Kauri Kachin Hills having the foreheads lilac instead of green. At the same time there are other specimens

from the same places with green crowns and it is probable that the violet in the crowns of *andersoni* has been caused by getting wet whilst being prepared. For the present I do not recognize this race as sufficiently proved.

**Nidification.** Very many years ago Möller took several nests of this Sunbird in Sikkim, three in May and one in August, but he does not say at what elevation. The nests he describes as made of fine black rootlets lined with grass and then with seed-down; all four were pear-shaped structures hanging from the ends of small branches of bushes. Primrose and Inglis took many of these nests in Goalpara and these were quite like others taken by myself and Coltart elsewhere in Assam. They were made nearly entirely of cotton-down, almost covered externally with moss, caterpillar excretæ and other oddments; all were pear-shaped, with their necks composed of moss and moss-roots strong enough to sustain the weight of the nest. In nearly every instance the nests were strongly attached to the roots of bushes dangling down from the overhanging banks of small ravines and water-courses running through dense and very humid evergreen-forest. In rare instances only did we find the nests on bushes. The eggs number two or three and are of two fairly definite types. In one the ground-colour is a pale cream or grey and the markings consist of numerous patches, small blotches and spots of light purplish-brown, numerous everywhere but even more so at the larger end, where they form fairly distinct rings or caps. Rarely the markings are paler reddish-brown but the only two clutches I have seen of this description were taken at high elevations, over 6,000 feet, in Sikkim and the Naga Hills and the birds breeding at these elevations may be the form I have recently described as *mussooriensis*. The second type has the ground pure white with markings of deep vandyke-brown, sparse over the greater part of the egg but forming a cap or ring at the larger end. Twenty-seven eggs average 15·1 × 11·4 mm.: maxima **16·3** × 11·6 and 15·9 × **12·0** mm.; minima **14·3** × **11·2** mm.

In Assam and the foot-hills of the Himalayas they breed during May, June and July. A very large number of the nests contained eggs of the little Cuckoo, *Chalcites maculatus*.

**Habits.** This subspecies of *Æ. siparaja* is a bird of the plains and foot-hills of the Himalayas, wandering up to about 4,000 or, perhaps, even 5,000 feet but normally inhabiting the wettest and hottest areas stretching from Eastern Assam to the foot-hills of Kuman. More breeding material is still wanting of both *seheriæ* and *mussooriensis*.

In Winter this beautiful Sunbird is found alike in forest, thin jungle, cultivated lands and in gardens and orchards. Where there are flowers, flowering shrubs or other insect attractions there will the Yellow-backed Sunbird assuredly be found, clinging to the stem of the flowers and rapidly inserting its bill like a bee, first into one, then into another of the flowers, reaching the

honey and also eating the many insects engaged in a like repast. Sometimes it will hover for seconds in front of a flower as it feeds on its contents, sometimes but for a moment before darting off at wonderful speed, only to return again to the same flower or to one a few inches away. Where there are no flowers it hunts the under surface of leaves for insects and I have also seen it feeding on small spiders. When the breeding-season commences it resorts far more to forest and far less to gardens, though it never quite deserts the latter. The note is a sharp trill and is uttered on the wing; males when feeding in company, as they often do, constantly make this call to one another, but they are very pugnacious as well as gregarious and their social clubs often break up in disorder over some trivial dispute. They feed most often on flowers and bushes near the ground but I have seen them feeding in the flowers of the cotton-tree over 100 feet up.

## (1263) Æthopyga siparaja mussooriensis.

THE KUMAN YELLOW-BACKED SUNBIRD.

*Æthopyga siparaja mussooriensis* Stuart Baker, Bull. B.O.C., xlvi, p. 12 (1925) (Mussoorie).

**Vernacular names.** None recorded.

**Description.** This form only differs from *Æ. s. seheriæ* in being larger, with a very long, broad tail and in having the scarlet of the throat and breast even brighter.

**Colours of soft parts** as in *seheriæ*.

**Measurements.** Wing 60 to 65 mm.; tail 70 to 89 mm.; tarsus about 15 to 17 mm.; culmen 19 to 21 mm.

**Distribution.** The North-West Himalayas from Garhwal and Kuman to the Afghan frontier. *Æthopyga goalpariensis*, of which the type-locality is Dehra Dun, is evidently only a synonym of *seheriæ*, which is a bird of low levels, never being found in the Himalayas above 5,000 feet and seldom above 3,000, whereas *mussooriensis* is a bird breeding at high elevations only. Birds from equally high elevations in Native Sikkim appear also to be of this race and have wings of 60 mm. upwards. In the hills South of the Brahmaputra only the next form has been proved to occur but Tytler found a Yellow-backed Sunbird breeding at 6,000 and 7,000 feet in the Naga Hills and these may be *mussooriensis* also. It must be remembered, however, that South of the river one is still in tropical vegetation at 7,000 feet, whereas North of the river an elevation of less than 5,000 feet would have much the same temperature and general characteristics.

**Nidification.** Whymper took a number of nests of this form during July above Naini Tal. The nests he describes as much like those of *seheriæ* taken by Möller in Sikkim, "pear-shaped nests made of fibre and lined with white vegetable down, showing

through the network of fibre. A few dead leaves, strips of bark, etc. are attached loosely to the nest and there is generally a small porch over the entrance." The eggs are like the second type described as being laid by the preceding bird but are much redder than any I have seen of that bird except the two taken in Sikkim and the Naga Hills. The nests of the high-elevation birds also differ from those of the plains, in that they are always attached to small boughs of low bushes and are not found in dark forest ravines but rather in open forests and scrub-jungle. Fifteen eggs average 15·3×11·4 mm.: maxima **16·2×12·0** mm.; minima **14·4**×11·5 and 15·0×**10·5** mm.

**Habits.** Much the same as those of the preceding subspecies but it never seems to frequent the darker evergreen-forests, keeping to open, though well-wooded country, all the year round and at all times being common in flower gardens and in cultivated ground.

## (1264) Æthopyga siparaja viridicauda.

THE YUNNAN YELLOW-BACKED SUNBIRD.

*Æthopyga seheriæ viridicauda* Rothschild, Nov. Zool., 1921, p. 58 (Tengueh, Yunnan).

**Vernacular names.** None recorded.

**Description.** This race differs from *Æ. s. seheriæ* only in being duller and more grey on the abdomen. Further material may show that it cannot be maintained.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 56 to 57 mm.; tail 59 to 67 mm.; tarsus about 14 mm.; culmen 17 to 18 mm.;

**Distribution.** Yunnan. A specimen from Maymyo in the Shan States is also referred by Rothschild to this form.

**Nidification** unknown.

**Habits.** Forrest obtained this Sunbird at Tengueh, Yunnan, at between 5,000 and 6,000 feet in open scrub. They were killed in June.

## (1265) Æthopyga siparaja vigorsi.

VIGORS'S YELLOW-BACKED SUNBIRD.

*Cinnyris vigorsi* Sykes, P. Z. S., 1832, p. 98 (Deccan).
*Æthopyga vigorsi.* Blanf. & Oates, ii, p. 350.

**Vernacular names.** None recorded.

**Description.—Male.** Upper parts like a very dark *Æ. s. seheriæ*; crown metallic green; hinder crown and nape blackish, showing more or less copper reflections; back deep crimson-red, the

feathers with black bases which show through; rump yellow; visible portions of tail metallic green; greater coverts and wing-quills very dark brown edged narrowly with paler brown; a long moustachial streak and patch behind the ear-coverts metallic purple-violet; sides of head, neck and breast crimson-scarlet, brighter and more scarlet in the centre and with numerous fine streaks of yellow; abdomen, posterior flanks, vent and under tail-coverts dark ashy-grey; under wing-coverts and axillaries ashy-white.

**Colours of soft parts.** Iris crimson to red-brown; bill horny-black, paler below; legs and feet dark brown to blackish.

**Measurements.** Wing 60 to 66 mm.; tail 51 to 60 mm.; tarsus 15 to 16 mm.; culmen about 20 to 21 mm.

**Female.** Whole plumage dull smoky olive-green, the crown browner and the lower parts more ashy; under tail-coverts edged with pale dull yellow; axillaries and under wing-coverts ashy-white, the inside of the shoulder yellowish.

**Young males** are like the female.

**Distribution.** The West coast of India from Bombay to Travancore. Jerdon's record of this bird from Bastar, South-East of Nagpur, requires further confirmation.

**Nidification.** Vigors's Yellow-backed Sunbird breeds about Mahabaleshwar in June and September and O'Donnel took a nest in the latter month near Poona. The nest is a typical Sunbird's, sometimes with, occasionally without, a porch over the opening. Eggs taken by Davidson and Wenden are very like those of *Æthopyga s. seheriæ* but larger, 16·0 × 12·2 mm.; a pair taken by Mr. O'Donnel and now in my possession have a pale grey ground and are thinly freckled all over with rather darker yellowish-grey, numerous enough at the larger end to form an indefinite cap. They measure 18·3 × 12·3 and 17·8 × 12·6 mm.

**Habits.** This appears to be a Sunbird both of open country and of the deeper forests but there is very little on record about it. In Khandesh it is found frequenting the dense tree-forest growing in the ravines and pockets of the hill country, feeding both upon the tops of the highest trees and the lower bushes alike. Its flight is said to be very powerful and the note to be the loud trill common to all the Sunbirds.

This bird differs from *Æ. s. seheriæ* so greatly that one is tempted to give it the status of a species but in Burma we get a few individual specimens of *cara* which show fine streaks of yellow on the breast, whilst in *Æ. s. siparaja* they are again more conspicuous. It seems therefore reasonable to consider this a representative race of *siparaja* in Southern India, developed by isolation to an extreme degree of variation from its parent stock.

## Æthopyga ignicauda.

*Key to Subspecies.*

A. Backs red.
- *a.* Breast yellow, with moderate wash of scarlet-crimson on the centre .. *Æ. i. ignicauda*, ♂, p. 383.
- *b.* Breast lemon-yellow, with no, or very little, scarlet ..... *Æ. i. flavescens*, ♂, p. 384.
- *c.* Breast orange-yellow, with large patch of scarlet ..... *Æ. i. exultans*, ♂, p. 385.

B. Backs green.
- *d.* Tail green, merely tinged with reddish *Æ. i. ignicauda*, ♀, p. 383.
- *e.* Tail very strongly suffused with red . *Æ. i. flavescens*, ♀, p. 384.

### (1266) Æthopyga ignicauda ignicauda.

The Fire-tailed Yellow-backed Sunbird.

*Cinnyris ignicauda* Hodgs., Ind. Rev., ii, p. 273 (1837) (Nepal).
*Æthopyga ignicauda.* Blanf. & Oates, ii, p. 351.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, crown and sides of chin and throat metallic blue; sides of the crown, from the eye, nape, back and sides of neck, back, scapulars and upper tail-coverts crimson; rump bright yellow; middle tail-feathers crimson brick-red, outer feathers brown edged with crimson; wing-feathers brown, edged with ruddy olive-yellow; chin and throat purple; breast yellow, suffused in the centre with scarlet-crimson; remainder of lower plumage dull greenish-yellow.

**Colours of soft parts.** Iris dark brown; bill, legs and feet black.

**Measurements.** Wing 55 to 60 mm.; tail 108 to 118 mm.; tarsus 14 to 15 mm.; culmen about 17 to 19 mm.

**Female.** Upper plumage ashy-green, brighter on the back and with the feathers of the rump and upper tail-coverts fringed with yellow; wing like that of the male; central tail-feathers blackish, edged with rufescent brown and tipped paler; chin, throat and breast ashy-green, changing to greenish-yellow on the abdomen and posterior flanks.

**Distribution.** Nepal, Sikkim, Assam, Cachar, Sylhet, Manipur and Tippera in Eastern Bengal. West it extends to Garhwal and Kuman.

**Nidification.** I found this Sunbird breeding occasionally in the highest hills South of the Brahmaputra in April and May at about 6,000 feet. The nests were pear-shaped, made of the finest seed-down, held together with spiders' webs, scraps of moss and grass, and were attached to bracken-fronds in stunted oak forest. One nest taken in the Khasia Hills was similar but mixed with fine black fibrous roots. A nest taken by Osmaston

on the Tons River in Tehri-Garhwal at 11,000 feet differed considerably from this, as did one taken by Whymper in the hills above Naini Tal. Both these latter nests were oval in shape, made externally of moss and fibre, then a layer of "thin pink papery rhododendron bark" and finally a lining of fine grass, flowers and feathers, or of cotton-seed. The eggs number two or three and vary greatly both in size and colour. In one clutch in my collection the eggs are pure white, scantily marked with small blotches of pinky-brown; another is creamy-pink with more numerous markings; whilst a third is livid pink, freckled all over with purplish-red, coalescing to form a cap at the larger end. In size they vary from **14·3×11·0** to **18·8×12·5** mm. (*Osmaston*). The average of 13 eggs is 15·7×11·8 mm.

**Habits.** This handsome Sunbird is an inhabitant of very high elevations, generally breeding above 8,000 feet, whilst Blanford and Osmaston both found it breeding at 11,000 feet and the latter also saw it up to 12,000 feet in Sikkim and up to 11,500 in Garhwal. It is a forest bird; Whymper and Osmaston found it mostly in forests of silver fir, birch and rhododendron, whilst the few seen by myself were all in forest, either of oak, *Quercus serratifolia*, or in mixed oak- and rhododendron-jungle. I found it to be a shy, retiring bird, though in the cold weather it used often to enter gardens and cultivated country. At this time of the year it descends commonly to 3,000 or 2,000 feet and Stevens actually obtained it in the Dejoo Tea Estate in the plains of Lakhimpur and shot some specimens which were feeding in the tea-bushes.

## (1267) Æthopyga ignicauda flavescens.

RIPPON'S FIRE-TAILED SUNBIRD.

*Æthopyga ignicauda flavescens* Stuart Baker, Bull. B. O. C., xli, p. 71 (1921) (Mt. Victoria, Chin Hills).

**Vernacular names.** None recorded.

**Description.—Male.** Similar to the preceding race but having the breast a paler, more lemon-yellow, with hardly any scarlet suffusion in the centres; the back seems more deep in colour, contrasting noticeably with the scarlet upper tail-coverts.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 53 to 56 mm.; tail 81 to 89 mm.; tarsus 14 to 15 mm.; culmen 18 to 19 mm.

**Female** similar to that of the preceding race but with much more red on the tail.

**Distribution.** At present only known from Mt. Victoria in the Chin Hills.

**Nidification unknown.**

**Habits.** None recorded.

## (1268) Æthopyga ignicauda exultans.

THE YUNNAN FIRE-TAILED SUNBIRD.

*Æthopyga ignicauda exultans* Stuart Baker, Bull. B.O.C., xlvi, p. 13 (1925) (Shweli-Salwin Divide, W. Central Yunnan).

**Vernacular names.** None recorded.

**Description.** Similar to *Æ. i. ignicauda* but rather deeper crimson above; below, the yellow is deeper and there is a greater extent of red on the breast.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 58 to 60 mm.; tail 71 to 136 mm.; tarsus about 16 mm.; culmen about 19 to 21 mm.

**Female** unknown.

**Distribution.** Yunnan.

**Nidification** unknown.

**Habits.** Forrest obtained his fine series in thickets by streams at an altitude between 8,000 and 9,000 feet on the Shweli-Salwin Divide in West Central Yunnan.

## (1269) Æthopyga gouldiæ gouldiæ.

MRS. GOULD'S SUNBIRD.

*Cinnyris gouldiæ* Vigors, P.Z.S., 1831, p. 45 (Himalayas, Simla-Almora).
*Æthopyga gouldiæ.* Blanf. & Oates, ii, p. 352.

**Vernacular names.** None recorded.

**Description.—Male.** Crown, forehead, chin, throat, a patch behind the ear-coverts and a spot beside the breast deep metallic purple-blue; lores, cheeks, sides of crown, neck, back, scapulars and lesser wing-coverts crimson; rump bright yellow; upper tail-coverts and two-thirds of central tail-feathers metallic purple-blue, the end of the tail-feathers black tinged with metallic purple, outer tail-feathers brown suffused with purple on the outer webs and with broad pale tips; lower parts bright yellow, streaked with crimson on the breast and greenish on the posterior flanks, vent, and under tail-coverts; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris reddish-brown to crimson; bill black, a little paler and browner below; legs and feet dark brown.

**Measurements.** Wing 53 to 58 mm.; tail 66 to 86 mm.; tarsus 14 to 15 mm.; culmen 14 to 16 mm.

**Female.** Upper plumage pale grey-green, the crown darker, with nearly concealed brown centres; rump dull sulphur-yellow; cheeks, ear-coverts, chin, throat and upper breast greyish olive-green, becoming more yellow on the abdomen, posterior flanks

and under tail-coverts; tail-feathers brown edged with violet-green.

**Distribution.** The Himalayas from the Sutlej Valley to the extreme East of Assam, Naga Hills, South of the Brahmaputra above 6,000 feet and also Mt. Victoria, in the Chin Hills, from 6,000 feet upwards.

**Nidification.** Col. Tytler found this Sunbird breeding in great numbers in the Naga Hills between 6,000 and 8,000 feet. A series of the nests given to me, with the eggs, are stout pear-shaped or oval affairs measuring 6 and 7 inches in length by about 4 to 4½ inches in breadth and are made almost entirely of vegetable down, held together with moss, shreds of grass and spiders' webs, whilst in one nest there is a considerable amount of fibre used. They were all attached to thin branches of small bushes, within a few feet of the ground, growing in forest.

The eggs differ from those of the other Sunbirds in their very pale coloration; the ground is pure white and in most eggs the markings, freckles of pale reddish-brown, are very scanty and confined to the larger end. In one clutch the eggs are practically unmarked and in one other they are more numerous at the larger end, where they form caps. Ten eggs average 14·6 × 11·2 mm.: maxima **15·3 × 11·5** mm.; minima **14·2 × 10·9** mm. The breeding-season is June and early July and only two eggs are laid.

**Habits.** Mrs. Gould's Sunbird is one of high elevations, its place being taken from 5,000 feet downwards by the next race, *isolata*. In the Himalayas it certainly occurs up to 12,000 feet and probably up to 13,000 feet in Summer, breeding up to 11,000 feet or higher. In Winter it descends to 5,000 feet or lower and at this season both this and the next bird may be found in company at this elevation. They are extraordinarily active little birds on the wing, though their flight is never very prolonged and becomes jerky and weak after a hundred yards or so. They are shy birds but if one keeps absolutely motionless, they will often feed within a few feet of the watcher and they make a very beautiful picture when several gather together for feeding purposes, the rapidity of their motions being almost like that of the Sphinx Moth. The note, which is constantly uttered, is the usual shrill trill of the species. They are essentially birds of evergreen-forest but come more into open country in the non-breeding season.

## (1270) Æthopyga gouldiæ isolata.

THE MANIPUR YELLOW-BACKED SUNBIRD.

*Æthopyga gouldiæ isolata* Stuart Baker, Bull. B. O. C., xlvi, p. 13 (1925) (Manipur).

**Vernacular names.** None recorded.

**Description.—Male.** Similar to Mrs. Gould's Sunbird but with

much paler yellow breast, lemon-yellow rather than deep yellow, with no red markings. It is also a rather smaller bird.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 51 to 53 mm.; tail 62 to 69 mm.; tarsus about 14 mm.; culmen 13 to 15 mm.

**Female.** Not distinguishable except by its rather smaller size.

**Distribution.** Manipur, Cachar and one specimen from Mt. Victoria, in the Chin Hills. This latter was obtained at 5,000 feet, whereas all the red-breasted birds were obtained at 6,000 feet and over. Hume records Mrs. Gould's Sunbird from Tippera and Chittagong and I am informed that it is not uncommon in the higher Hill Tracts of these districts. These are sure to be of this race and probably extend through all the lower hills and broken country to the Chin Hills.

**Nidification.** Exactly the same as that of the last bird except that it breeds at low elevations, from 5,000 feet practically down to the plains. I found it not rare in the North Cachar Hills up to 5,000 feet; in the Khasia Hills it breeds between 3,000 and 5,000 feet wherever there is evergreen-forest. The nests are not distinguishable from those of *Æ. g. gouldiæ* and the eggs only differ in being much smaller. The only two I have measured are both exactly 14·0 × 10·0 mm. and were taken on the 7th May. They lay between the 15th April and the 15th May, as I have found young birds as early as the 5th May and fresh eggs as late as the 15th of that month.

**Habits.** Similar to those of the preceding bird. I found that when feeding they kept almost entirely to bushes and the lower half of small trees. This was very noticeable when on one occasion I watched them feeding with *Æ. s. seheriæ*, for though the latter were tempted by the flowers of some Bauhinias to hunt even the topmost branches, the Manipur birds kept strictly to the lowest branches. They are resident birds but many wander farther afield a little in the Winter.

## (1271) Æthopyga dabryi.

DABRY'S SUNBIRD.

*Nectarinia dabryi* Verreaux, Rev. et Mag. Zool., p. 173 (1867) (Ta-tsein-lu, Szechuan).
*Æthopyga dabryi.* Blanf. & Oates, ii, p. 353

**Vernacular names.** None recorded.

**Description.—Male.** Similar to *Æthopyga g. gouldiæ* but with the whole breast flame-scarlet; the metallic tint of the crown and throat is more lilac or purple than blue.

**Colours of soft parts.** Iris deep brown; bill dull black; legs and feet very dark brown.

**Measurements.** Wing 53 to 58 mm.; tail 63 to 85 mm.; tarsus about 14 mm.; culmen about 14 to 15 mm.

**Female.** Like that of *Æ. g. gouldiæ* but with bolder, whiter tips to the lateral tail-feathers.

**Distribution.** Muliyet, Karenni, South Shan States, Kauri Kachin Hills, North-West China, Szechuan to Yunnan. I also found it on several occasions in Cachar.

This bird should possibly be treated as a subspecies of *Æ. gouldiæ*.

**Nidification.** There appears to be no record of the breeding of this Sunbird but I attributed to it three nests taken in North Cachar. The females were caught on the nests and the males seen. The nests are not pear-shaped but ovals, the support, in each case a bracken-frond, being incorporated in the top of the oval. The materials consisted of fibre, moss and a few grass-stems with a dense lining of Bombax seed-down. They were built in fairly thick oak forest with an undergrowth of bush, caladiums, etc. and everywhere a luxuriant growth of orchids. The breeding-season is May and June and all my nests were taken on the highest peaks of about 6,000 feet. The eggs are like those of *Æ. s. seheriæ* but are rather more boldly and much less profusely marked. Eight eggs average 14·3 × 10·8 mm.: maxima **15·1** × **10·6** and 14·6 × **11·1** mm.; minima **13·5** × 10·8 and 15·0 × **10·5** mm.

The specimens obtained by me in Cachar are all in the Museum at Sophia and I am not absolutely sure as to the correctness of my identification, but the individuals I believed to be of this species had far deeper coloured flame-red breasts than the ordinary *Æ. g. gouldiæ*.

**Habits.** Those of the genus but, as remarked by Davison, this bird when feeding is very hard to watch, as it dashes out of the gloom of the surrounding forests, feeds for a few seconds and then retires as suddenly as it came. It seems to be entirely a forest bird, not even entering open and cultivated spaces in the Winter. Wardlaw-Ramsay obtained it at 4,000 feet in Karenni but 6,000 to 9,000 feet is its more usual elevation, whilst Forrest found it frequenting pine-woods between 10,000 and 12,000 feet in Yunnan.

## (1272) Æthopyga saturata saturata.

THE BLACK-BREASTED SUNBIRD.

*Cinnyris saturata* Hodgs., Ind. Rev., ii, p. 273 (1837) (Nepal).
*Æthopyga saturata.* Blanf. & Oates. ii, p. 354.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, crown, nape, hind-neck and a broad moustachial streak metallic bluish-purple; back very dark crimson-maroon; lores, sides of the head and neck, lesser

wing-coverts, scapulars and lower back deep dull black; a very narrow yellow band, sometimes invisible, above the rump; rump, upper tail-coverts and two-thirds of the central tail-feathers metallic blue, terminal third blackish; wing-feathers dark brown with very fine black edges, often totally abraded; chin, throat and breast velvety-black; abdomen, vent and under tail-coverts dull green-grey; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris brown; bill black; legs and feet dark brown.

**Measurements.** Wing 52 to 59 mm.; tail 70 to 84 mm.; tarsus 14 to 15 mm.; culmen 18 to 20 mm.

**Female.** Above dull pale green with a band of whitish-yellow across the rump; wing- and tail-feathers brown edged with olive-green; below rather paler greenish; axillaries and under wing-coverts yellowish-white.

**Distribution.** Garhwal, Nepal, Sikkim, Assam, Cachar, Manipur, Chin Hills and Yunnan.

**Nidification.** A. M. Primrose first took the nest of this Sunbird in Cachar in 1898 and after this Dr. Coltart's and my Naga collectors brought us nests, eggs and birds from the lower hills round Margherita in Assam, whilst Whymper took nests in Naini Tal. The nests were all alike, made in great part with very fine black rootlets or fibre, mixed with moss, coarser roots and grass-stems and with one or two bamboo-leaves in the base; inside there is a thin lining of grass-stems and then the true lining of cotton-down. The nests are shaped like pears with a porch over the entrance which is about half-way down and, for the size of the bird, the nest is rather bulky. The eggs number two or three and are of two types. The first is the pale pink freckled type already described as the common type of *Æ. s. seheriæ*; the second has a pure white ground-colour with comparatively bold blotches and spots of deep brown with a few underlying of dark neutral tint. In this second type the markings are very sparse except at the larger end where they form well-defined rings or vague caps. Fifteen eggs average 14·7 × 11·3 mm.; maxima **15·3**×12·0 and 14·7×**12·1** mm.; minima **14·2**×11·1 and 15·0×**10·5** mm. In Assam the breeding-season is May and June; in Naini Tal June and July. They breed in forest, scrub jungle or in bamboo jungle, attaching their nests low down on the ends of branches of bushes or bamboos.

**Habits.** The Black-breasted Sunbird keeps much to the lower hills and the adjacent plains. In Summer it ascends the hills in some numbers up to about 5,000 feet, many, however, remaining to breed in their Winter quarters. It is a bird of the jungle but does not mind whether this is dense evergreen-forest, thin bush and bamboo cover or comparatively open

deciduous oak-woods. In flight, diet, voice etc. it resembles very closely the other Sunbirds of this genus. In Yunnan Forrest obtained this Sunbird in the Tengueh District in what he describes as open scrub-jungle at about 5,000 feet.

### (1273) Æthopyga sanguinipecta sanguinipecta.

WALDEN'S YELLOW-BACKED SUNBIRD.

*Æthopyga sanguinipecta* Walden, A. M. N. H., (4) xv, p. 400 (1875) (Tounghoo, Karenni); Blanf. & Oates, ii, p. 354.

**Vernacular names.** None recorded.

**Description.—Male.** Very similar to the Black-breasted Sunbird but has the yellow rump-band broad and conspicuous; the black of the throat only extends to the extreme upper breast and is then sharply defined from the olive-yellow of the lower breast which is streaked with blood-red; remainder of lower parts olive-green, paler than in *Æ. s. saturata*.

**Colours of soft parts.** Iris brown; bill and legs black. The bill in the female is more a dark horny-brown than black.

**Measurements.** Wing 52 to 56 mm.; tail 64 to 72 mm.; tarsus 14 to 17 mm.; culmen 17 to 19 mm.

**Female.** Distinguishable from the Black-breasted Sunbird by having a broad lemon-yellow band across the rump.

**Distribution.** South Shan States, Karen Hills, South to Muleyit in Tenasserim; Yunnan.

**Nidification.** Nothing recorded.

**Habits.** Very little known. It seems to be a bird of forests and bamboo-jungle and occurs from the level of the plains up to some 6,000 feet.

## Æthopyga nipalensis.

*Key to Subspecies.*

A. Upper back wholly crimson-maroon; breast yellow, much streaked with scarlet ..... *Æ. n. nipalensis*, p. 391.

B. Upper back green, a trace of crimson only next the neck; breast all yellow ..... *Æ. n. horsfieldi*, p. 392.

C. Upper back green with practically no trace of red; breast yellow lightly streaked with scarlet ..... *Æ. n. victoriæ*, p. 392.

## (1274) Æthopyga nipalensis nipalensis.

THE NEPAL YELLOW-BACKED SUNBIRD.

*Cinnyris nipalensis* Hodgs., Ind. Rev., ii, p. 273 (1837) (Nepal).
*Æthopyga nepalensis.* Blanf. & Oates, ii, p. 355.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead to hind-neck, chin and throat metallic green; sides of the head black; sides of the neck and the back deep crimson-maroon; scapulars and lower back olive-green; rump bright yellow; upper tail-coverts and three-quarters of central tail-feathers metallic green, terminal quarter of central feathers black; lateral tail-feathers black, all but the pair next the central ones with pale brown tips; breast golden yellow, finely streaked with scarlet; lower abdomen, posterior flanks, vent and under tail-coverts olive-yellow, the last more yellow; axillaries and under wing-coverts white washed with lemon-yellow.

**Colours of soft parts.** Iris deep brown or crimson-brown; bill black; legs and feet dark brown to black.

**Measurements.** Wing 53 to 56 mm.; tail 63 to 69 mm.; tarsus 14 to 15 mm.; culmen 18 to 20 mm.

**Female.** General colour above olive-green, washed with yellow on the rump and with concealed brown centres to the feathers of the crown; wing-feathers dark brown, edged rufescent olive-green; chin, throat, sides of neck and upper breast olive-grey, changing to olive-yellow on the abdomen and to yellow on the under tail-coverts.

The females of this group are separated from those of the *siparaja* group by their yellow under tail-coverts and greyer chins and throats. The bill is also more strongly curved.

**Distribution.** Eastern Nepal, Sikkim, Assam North and South of the Brahmaputra, Manipur, Kauri Kachin Hills, Shan States.

**Nidification.** Hodgson found these Sunbirds breeding in Eastern Nepal, they also breed commonly in Sikkim and round about Darjeeling and I have taken the nest once in the Khasia Hills where the bird is very common. The nest is the usual pear-shaped structure but without a porch over the entrance, very like a large edition of the nest of *Æ. s. saturata* and built of just the same materials but with more cotton-down and less fibre and finer roots in its external walls. Hodgson described the nests as oval, rather than pear-shaped, but otherwise like those taken by myself. The eggs are said to number two or three, white in ground-colour with spots and mottlings of reddish-brown in a ring at the larger end. The only three eggs I have seen agree well with this description and measure 16·9 × 12·7, 16·0 × 13·0, and 16·0 × 12·6 mm. Hodgson's eggs were longer but narrower, measuring 17·3 × 10·9 mm. They are early breeders, Hodgson's and my

own eggs being taken in April and I have seen advanced young in the first week of May. They breed in glades and the more open parts of evergreen-forest.

**Habits.** Very similar to those of other Sunbirds. They are not shy birds and are common in gardens and along roads, feeding on the nectar in the flowers as well as on insects. They occur at all heights between 3,000 and 10,000 feet, possibly most often between 4,000 and 7,000 feet, and are resident throughout the year except at the highest elvations.

## (1275) Æthopyga nipalensis horsfieldi.

BLYTH'S YELLOW-BACKED SUNBIRD.

*Cinnyris horsfieldi* Blyth, J. A. S. B., xi, p. 107 (1842) (Descr. nulla); id. ibid., xii, p. 975 (1844) (Himalayas, restricted to Mussoorie).
*Æthopyga horsfieldi.* Blanf. & Oates, ii, p. 356.

**Vernacular names.** None recorded.

**Description.—Male.** Similar to the preceding bird but with very little crimson showing on the back except as a narrow collar next the neck; the lower parts are paler and have very little or no scarlet streaking on the breast.

**Colours of soft parts** as in the other races.

**Measurements.** The same as the preceding bird but with culmen 17 to 19 mm. though nearly always 18 mm. or under.

**Female.** Not distinguishable from the other races, unless by the shorter bill.

**Distribution.** Garhwal and Kuman. There are no specimens from Nepal and it is unlikely to occur in that State unless in the extreme West near Garhwal. Mr. Frith who sent the original specimens described by Blyth merely said they were from the hills (=Himalayas).

**Nidification** unknown.

**Habits.** This Sunbird resembles the typical form but very little has been recorded about its habits. It occurs between 2,000 and 6,000 feet and possibly a good deal higher than this.

## (1276) Æthopyga nipalensis victoriæ.

RIPPON'S YELLOW-BACKED SUNBIRD.

*Æthopyga victoriæ* Rippon, Bull. B. O. C., xiv, p. 83 (1904) (Mt. Victoria).

**Vernacular names.** None recorded.

**Description.—Male.** Differs from the Nepal Yellow-backed Sunbird in having no red at all on the back and very little on the sides of the neck; from Blyth's Yellow-backed Sunbird it

differs in having no trace of the red collar and in having the lower plumage richer yellow, more freely streaked with scarlet.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 52 to 56 mm.; tail 58 to 68 mm.; tarsus about 14 to 15 mm.; culmen about 18 to 20 mm.

**Female.** Similar to that of the other races.

**Distribution.** Mt. Victoria, Chin Hills between 6,400 and 8,400 feet

**Nidification and Habits.** Nothing recorded.

## Genus **LEPTOCOMA**

*Leptocoma* Cabanis, Mus. Hein., i, p. 104 (1850).

Type, *Leptocoma hasselti* Temm. = *L. brasiliana* Gmelin.

I can find no good characters by which this rather large and cumbersome group can be split up into more than one genus. Shelley's five groups of his genus *Cinnyris* depend entirely on colour and, even in this respect, are very contradictory. There appear to be two characters which, if constant, could have been used as generic. These are, first, the presence or absence of breast tufts in the male and, secondly, the open or concealed condition of the nostrils. The first character at once separates five of our Indian forms which seem in every respect congeneric with *Cyrtostomus jugularis*, leaving three forms which have no tufts, *minima*, *hasselti* (=*brasiliana*), and *zeylonica* under *Leptocoma*. On the other hand, these two genera would each have some species with open nostrils and others with the nostrils covered with an operculum. *L. zeylonica* also in its life-history and general appearance is far more allied to the *Cyrtostomus* group than to the thus restricted *Leptocoma* group. Under these circumstances I retain all our species under the genus name *Leptocoma* which has page priority over *Cyrtostomus* and *Arachnechthra*. This genus has a post-breeding moult of all the body-feathers, when a plumage very similar to that of the female is acquired.

### *Key to Species.*

A. Chin and throat dark-coloured and metallic.
*Males.*
*a*. Abdomen dark-coloured.
*a'*. Upper plumage uniform in colour.
*a''*. A maroon band across the chest.... *L. lotenia*, p. 394.
*b''*. No maroon band across the chest .. *L. asiatica*, p. 396.
*b*. Upper plumage varied; green, black and blue ..... *L. brasiliana*, p. 400.
*b*. Abdomen yellow.
*c'*. Back olive-yellow.
*c''*. Forehead and fore-crown violet-blue *L. ornata*, p. 401.

| | |
|---|---|
| *d''*. Forehead and fore-crown like back . | *L. flammaxillaris*, |
| *d'*. Back crimson. | [p. 403. |
| *e''*. Upper tail-coverts metallic red .... | *L. minima*, p. 405. |
| *f''*. Upper tail-coverts metallic purple .. | *L. zeylonica*, p. 406. |
| B. Chin and throat pale and not metallic. *Females.* | |
| *c*. Entire lower plumage yellow. | |
| *e'*. Rump and upper tail-coverts like the back. | |
| *g''*. Lateral tail-feathers broadly tipped with white ..... .... | *L. lotenia*, p. 394. |
| *h''*. Lateral tail-feathers narrowly tipped with white. | |
| $a^3$. Lower plumage rich yellow .... | *L. ornata*, p. 402. |
| $b^3$. Lower plumage pale yellow. | |
| $a^4$. Bill under 16 mm..... | *L. brasiliana*, p. 400. |
| $b^4$. Bill over 16 mm | |
| $a^5$. Lateral tail-feathers with narrow white tips ..... | *L. asiatica*, p. 396. |
| $b^5$. Lateral tail-feathers with broad white tips ..... | [p. 403. *L. flammaxillaris*, |
| *f'*. Rump and upper tail-coverts red .... | *L. minima*, p. 405. |
| *d*. Chin and throat ashy-white, remaining lower plumage bright yellow ..... | *L. zeylonica*, p. 406. |

## (1277) Leptocoma lotenia.

LOTEN'S SUNBIRD.

*Certhia lotenia* Linn., Syst. Nat., 12th ed., i, p. 188 (1766) (Ceylon).
*Arachnechthra lotenia*. Blanf. & Oates, ii, p. 358.

**Vernacular names.** *Than-kudi* (Tam.).

**Description.—Male.** Whole upper plumage, lesser and median wing-coverts metallic green washed with purple-violet, the upper tail-coverts sometimes more blue; tail deep blue narrowly edged with metallic green; greater wing-coverts and quills dark brown; chin, throat and sides of the breast and neck metallic green changing to metallic purple-violet on the centre of the breast; a band of maroon next the breast; pectoral tufts yellow more or less mixed with scarlet; remainder of lower plumage snuff-brown.

There is, so far, nothing on record as to the non-breeding plumage of this Sunbird, but it will, undoubtedly, eventually be found to have a post-breeding moult into a plumage resembling that of the female.

**Colours of soft parts.** Iris deep brown or red-brown; bill, legs and feet black.

**Measurements.** Total length about 140 mm.; wing 55 to 59 mm.; tail 37 to 39 mm.; tarsus 15 to 16 mm.; culmen about 16 to 19 mm.

**Female.** Whole upper plumage, wings and sides of the neck brown, rarely washed with greenish in freshly moulted specimens;

tail dark brown, lateral feathers narrowly tipped with white; lower plumage pale dull yellow, brightest on the abdomen.

**Measurements.** Wing about 5 mm., shorter on an average than in the male.

**Young birds** are dull brown with pale margins to the feathers above; below dull oily yellow-grey.

**Distribution.** Ceylon and South India as far North as Ratnagiri on the West; the Deccan (*Sykes*), and Madras on the East. It is possible, however, that it also extends a good deal farther North than Madras, though the fact has not yet been recorded.

**Nidification.** In Travancore and the greater part of Southern India Loten's Sunbird breeds from January to the end of April, but in Karwar Davidson took its eggs as late as August. In Ceylon the principal breeding months are February to May. The nest is a pendent structure, pear-shaped and made of lichen, grass, leaves, moss and wool all much intermixed and matted together with cobwebs and then decorated externally with chips of wood, bark, caterpillar excretæ and a variety of other scraps, loosely attached to the nest and often hanging in a long tail below it. The lining is of down or wool, generally the former, well matted and also mixed into the other materials. A few nests are more round without any neck or tail but all seem to have a compact porch screening the entrance. They may be placed in any low bush or attached to trellis-work of verandahs and ornamental arches and are sometimes well concealed and sometimes very conspicuous. In Ceylon Wait says that in the majority of cases the nests are simply hollows made in the masses of flocculent spiders' webs so common in that island. He writes: "In the interior of the mess the birds press out a more or less globular chamber, lining the walls with vegetable down and generally providing a little eave of cobweb over the entrance."

The eggs generally number two only, occasionally three. The ground-colour is greyish-white, sometimes slightly greenish and, very rarely, reddish or buff. The markings consist of specks and freckles of grey or brownish-grey profusely scattered all over the egg, generally rather longitudinal in character and often coalescing to form a ring or cap at the larger end. Fifty eggs average 17·0 × 12·0 mm.: maxima **18·1** × 12·0 and 17·1 × **12·4** mm.; minima **15·9** × 11·6 and 16·3 × **11·2** mm.

**Habits.** Loten's Sunbird is found throughout the plains and ascends the hills up to 5,000 feet in Southern India and up to 3,000 feet in Ceylon. It is found alike in thin forest, cultivated country and constantly in gardens, the flowers of the Hibiscus forming a special attraction. It feeds both on the nectar of the flowers and also on small insects, for the most part perching and thrusting its long beak well into the blooms but, also, sometimes

hovering before them like a humming-bird. The voice is a pleasant loud trill, much the same as that of *Leptocoma asiatica*.

## Leptocoma asiatica.

*Key to Subspecies.*

A. Bill from front 16 to 19 mm.
  *a*. Plumage less richly coloured; pectoral tufts less scarlet ..... *L. a. asiatica*, p. 396.
  *b*. Plumage richer; pectoral tufts more scarlet ..... *L. a. intermedia*, p. 398.
B. Bill from front 13 to 15 mm. ..... *L. a. brevirostris*, p. 399.

### (1278) Leptocoma asiatica asiatica.

The Indian Purple Sunbird.

*Certhia asiatica* Lath., Ind. Orn., i, p. 288 (1790) (India. *Gurgaon*, Central India).
*Arachnechthra asiatica*. Blanf. & Oates, ii, p. 359 (part).

**Vernacular names.** *Shakar khora* (Hind.); *Juggi jugi* (Bhagalpur); *Than-kudi* (Tam.); *Gewal kurulla* (Cing.); *Thun-thuni* (Beng.).

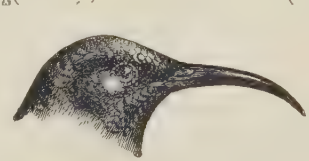


Fig. 76.—Head of *L. a. asiatica*.

**Description.**—**Adult male.** Whole upper plumage, lesser and median wing-coverts metallic purple, sometimes washed with violet and sometimes all more greenish; tail deep blue-black; greater coverts black, those next the scapulars edged with purple; quills dark brown; chin, throat, fore-neck and breast metallic violet-blue with a tinge of copper across the breast; remainder of underparts violet or purple-black; pectoral tufts mixed scarlet and yellow, the latter predominating.

**Colours of soft parts.** Iris hazel to deep brown; bill and legs black.

**Measurements.** Wing 55 to 57 mm.; tail 35 to 36 mm.; tarsus 15 to 16 mm.; culmen about 16 to 19 mm.

**Female.** Upper plumage and wings dull greenish-brown; the tail dark brown, the lateral feathers tipped with white; lower plumage dull to rather bright yellowish.

**Young birds** are like the adult female with rather more grey lower plumage. The young males acquire a broad metallic purple stripe from the chin to the lower breast and the metallic upper plumage at the first Spring moult.

**Males in Winter** lose the dark metallic plumage and become greenish above and light yellow below with a broad median stripe of metallic black. Finn and Ticehurst have shown that in addition to the complete Spring moult the males have a body-moult in the Autumn and the latter has in his collection specimens of the Sind race showing the new yellow feathers of the abdomen appearing among the old metallic feathers. In the Common Indian Purple Sunbird both Spring and Autumn moult must be most irregular as males in full breeding-plumage are common throughout the Winter, but with a bird having so prolonged a breeding-season this is to be expected.

**Nidification.** The Indian Purple Sunbird breeds principally from January to May but the time varies greatly in different Provinces and in Saugor and Jhansi May to August seem the favourite months. Around Calcutta, where they are exceptionally common, I have seen nests with eggs in every month of the year but it is exceptional for them to breed just before or just after the break of the rains in June and July. In the Nilgiris, where they breed up to 8,000 feet, March to June forms the breeding-season, whilst in the Himalayas, which they ascend to about 4000 feet, most eggs are laid in May and June. In Ceylon they breed, principally, from November to May. The nest is pear-shaped with a rather long neck, a tail of oddments and an entrance rather high up, generally with a porch hiding or semi-hiding it. Almost any materials may be used in its construction, but scraps of moss, lichen, leaves and bits of grass form the basis always much mixed with cobwebs. One nest I saw was built almost entirely of scraps of tissue-paper, another in great part of bits of red flannel, whilst a third, the builders not content with an odd feather or two, was composed of hardly anything but chicken-feathers. The lining is of down, fine seeding grass or wool. The nest may be placed almost anywhere but nearly always within six feet or so of the ground. This Sunbird does sometimes breed in thin forest or scrub-jungle but it is essentially a bird of the garden and often, indeed, of the house, fastening its nest to the lattices of verandahs, to branches of verandah pot-plants or even to ropes and other convenient points inside the houses. It lays two or three eggs, but most often the former in Southern India and Ceylon. The ground-colour is normally a pale grey but they are often tinted with yellow, buff, red or green. In the great majority of eggs the markings consist primarily of flecks and freckles of greyish-brown covering the whole egg profusely but nearly always most numerous at the larger end. In some there is a well-defined ring and in others a blurred cap. In a few eggs the markings are sparse elsewhere but form broad rings or caps at the larger ends. Exceptional eggs are rich red-brown in general tint rather than grey-brown. One hundred eggs in my own collection average 16·3 × 11·6 mm.: maxima **17·9** × 11·8 and 16·9 × **12·3** mm.: minima **14·1** × 11·0 and 15·1 × **10·9** mm. A very large egg taken by Blewitt measured 19·3 × 12·4 mm.

Most birds have two broods, and many, three, in the year.

**Habits.** This sprightly little bird is a feature of every Indian garden, which he adorns with his presence and helps to keep cheerful with his song, which Inglis likens "in some respects to that of a canary." The ordinary note is the shrill, but pleasant, trill of the genus. It is a most active and energetic little bird, ever on the move; sometimes dodging about the branches of a flowering shrub, first hanging head downwards to peer into some flower, then dashing at a leaf to secure a tiny insect and, anon, poised on quivering wing it hovers in front of another bloom seeking its dinner of nectar, seasoned with small insects. Its display is very beautiful. It hovers vertically in the air, its wings beating so quickly that only a haze of feathers is seen, in front of which its pectoral plumes show like a blaze. For a few seconds this attitude is maintained, then with a flick of its wings it is away, only to return in a few moments to the same spot and repeat the performance.

In the greater part of its habitat this bird is resident, but it deserts the higher hills in Winter and in the Punjab also it seems to be only a Summer visitor.

## (1279) Leptocoma asiatica intermedia.

THE BURMESE PURPLE SUNBIRD.

*Arachnechthra intermedia*, Hume, Ibis, 1870, p. 436 (Tippera, Eastern Bengal).
*Arachnechthra asiatica*. Blanf. & Oates, ii, p. 359 (part).

**Vernacular names.** *Thun-thuni* (Beng.); *Shakar khora* (Hind.); *Man-pyi-sot* (Burmese, Kyoukse District).

**Description.** Similar to the Indian Purple Sunbird but generally more richly coloured, the prevailing metallic tint being violet rather than green; the pectoral tufts are larger and more mixed with scarlet.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 56 to 58 mm.; culmen 17 to 20 mm.

**Female.** Similar to that of the preceding bird but generally more yellow below.

**Distribution.** Extreme Eastern Bengal, Assam, Burma, South to Tenasserim, East to the Karen Hills and thence into the Indo-Chinese countries.

**Nidification.** The Purple Sunbird's breeding in Burma has never been recorded but Hopwood took nests in the Lower Chindwin in April and Macdonald in Myingyan in the same month, whilst I found it breeding in small numbers in Cachar and Sylhet as well as in Tippera and Chittagong, districts of Eastern Bengal. All the nests with eggs seen by me were in April and May but it almost certainly breeds in March and June also, as I once saw

young able to fly in the second week of April and was told of a nest containing eggs on the 18th June in Silchar. The nest is much the same as that of *L. a. asiatica*, a very pretty but untidy pear-shaped affair, made of all sorts of rubbish and decorated with a variety of cocoons, spiders' egg-bags, excretæ of caterpillars, etc. The entrance, which is half-way up, sometimes has a porch and sometimes none. The nest is generally placed in a low bush, or in a trellis over an arch or verandah which is more or less covered by a creeper and all those of which I have notes have been built in gardens. The eggs number two or three and range through the same variations as those of the preceding bird. Fifteen eggs average 16·0 × 11·3 mm.: maxima **16·7** × 11·1 and 16·6 × **11·8** mm.; minima **15·3** × **10·8** mm.

**Habits.** The Burmese race of the Purple Sunbird seems nowhere to be the extremely common bird the Indian race is. Over Assam and the extreme Eastern districts of Bengal it occurs as a very rare frequenter of gardens and compounds, perhaps two or three pairs only being found in a comparatively big station. In parts of Burma it is a little more numerous but nowhere common even there. In all other respects the habits of the two birds are identical.

## (1280) Leptocoma asiatica brevirostris.

THE SIND PURPLE SUNBIRD.

*Nectarinia brevirostris* Blanf., Ibis, 1873, p. 86 (Jalk, Baluchistan).
*Arachnechthra asiatica.* Blanf. & Oates, ii, p. 359 (part).

**Vernacular names.** *Dunbarg* (Sind).

**Description.** Differs from the two preceding forms in its smaller bill and its less brilliant violet or purple upper parts, which are more often green than in the other races; the pectoral tufts are in most cases small and less marked with red.

**Colours of soft parts** as in the other races.

**Measurements.** Wing 55 to 57 mm.; tail 34 to 35 mm.; tarsus 15 to 16 mm.; culmen 13 to 15 mm.

**Female.** Generally rather paler and less richly coloured than in either of the other races of this species.

**Distribution.** Sind, Baluchistan, Afghanistan and the borderland of the North-West Frontier Province. It extends to Eastern Persia and to the districts East of the Persian Gulf.

**Nidification.** Pitman found this Sunbird breeding in great numbers in Dehra Ismail Khan in April and early May and Ticehurst says that in Sind it breeds from April onwards. It possibly breeds considerably later than this also, for he saw males assuming the post-nuptial plumage as late as October and the 5th November. In Bengal most males of *L. a. asiatica* assume the Winter plumage in July and August immediately after breeding in May and June, but those which breed early or late advance or retard the moult

accordingly, so we may assume the Sind race does the same. The nest resembles that of *Leptocoma a. asiatica* and no description is necessary. The eggs, also, are like those of that bird but I have seen none with a red tint. Twenty-five eggs average 16·9 × 11·7 mm.: maxima **17·9** × 11·8 mm. and 17·8 × **12·1** mm.; minima **15·3** × 11·7 and 17·8 × **11·0** mm.

The male bird is said sometimes to display perched on a twig.

**Habits.** Similar to those of the other races. A considerable number of birds seem to leave Upper and Central Sind in Winter and at that season the numbers correspondingly increase in Lower Sind. In the Frontier Province they are resident all the year round though doubtless they leave the higher hills in Winter. Whitehead found it common on the Samana in Summer, arriving in March and leaving again in September.

## (1281) **Leptocoma brasiliana.**

VAN HASSELT'S SUNBIRD.

*Certhia brasiliana* Gmelin, Syst. Nat. i, p. 474 (1788) (Brazil, *in errore*; Java, *Oberholser*).
*Arachnechthra hasselti.* Blanf. & Oates, ii, p. 360.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead to nape metallic golden-green; lores, cheeks, ear-coverts, sides and back of the neck, the upper back, inner secondaries and all the wing-coverts, except next to the scapulars, velvety-black; lower back, scapulars and adjoining wing-coverts, rump and upper tail-coverts metallic purple-blue, in a few specimens more green; tail deep blue, edged with metallic purple-blue; primaries and outer secondaries dark brown; chin, throat and fore-neck metallic amethyst; breast and upper abdomen deep maroon; vent, posterior abdomen and flanks and under tail-coverts dull black; under wing-coverts and axillaries black.

**Colours of soft parts.** Iris hazel to dark brown; bill dark brown, the gape and mouth cinnamon-red; legs and feet black.

**Measurements.** Wing 45 to 50 mm.; tail 28 to 29 mm.; tarsus 12 to 13 mm.; culmen 13 to 15 mm.

**Female.** Upper plumage olive-green, the feathers of the crown with almost concealed dark centres; tail almost black, wings dark brown, the edges of the feathers of both greenish-rufous; lateral tail-feathers with narrow whitish tips; lower plumage dull yellow, the flanks and breast darker and suffused with grey-green; axillaries and under wing-coverts yellowish-white.

**Distribution.** Assam, Tippera, Chittagong, Manipur, Lushai and the whole of Burma, South through the Malay States to Java, Sumatra and Borneo. It is very rare in Assam but straggles into Cachar and Sylhet on the South and to Lakhimpur on the North of the Brahmaputra.

**Nidification.** All that is recorded is a note in Hume's 'Nests and Eggs' without name, date or locality which describes the nest as a "lovely little felted purse," made entirely of the glistening red-brown scales taken from the basal portions of the stems of ferns, densely felted together, coated thinly with fine black moss, roots and white silk from cocoons and finally decorated with scraps of moss and lichen. The eggs are *café-au-lait* colour, mottled in a zone at the larger end with dusky-grey. They measure 14·7 × 10·4 and 14·5 × 10·2 mm.

Nests taken by Houwing in Sumatra are described as similar to those of *Leptocoma asiatica*, but the eggs are pale violet-grey and the markings consist of tiny specks and lines of purple-black with others underlying of grey and neutral tint. They were taken in June and July.

**Habits.** Davison records it as extremely common in South Tenasserim, frequenting not only gardens and coconut groves but also thin forest and the Mangrove swamps. He describes it as a typical Honeysucker, feeding almost exclusively on nectar and uttering a feeble "chip, chip" as it flies from one flower to another.

## Leptocoma ornata.

*Key to Subspecies.*

A. Bill under 19 mm..... *L. o. ornata*, p. 401.
B. Bill 19 mm. or over ..... *L. o. blanfordi*, p. 402.

### (1282) Leptocoma ornata ornata*.

THE MALAY YELLOW-BREASTED SUNBIRD.

*Cinnyris ornatus* Lesson, Dict. Sci. Nat. i, 1788, p. 474 (Java).
*Arachnechthra pectoralis.* Blanf. & Oates, ii, p. 361.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, fore-crown and cheeks metallic blue; lores dusky black; sides of head and neck, upper plumage, lesser and median wing-coverts olive-yellow, the rump and upper tail-coverts brightest; tail very dark brown, edged with green and the lateral feathers narrowly tipped with white; chin, throat and fore-neck metallic violet bordered by metallic blue, more broadly on the breast where it is edged with a narrow broken band of maroon; pectoral tufts orange-yellow; lower plumage bright golden yellow; axillaries and under wing-coverts pale yellow.

* The name *Cinnyris pectoralis* Horsf. 1821 is preoccupied by *Cinnyris pectoralis* Vieill. 1819, and cannot therefore be used. Oberholser (Smiths. Misc. Coll. 60, p. 18, 1912) shows that Lesson's name *ornata* is the earliest available name which can be used.

**Colours of soft parts.** Iris very dark brown; bill, legs and feet black.

**Measurements.** Wing 50 to 55 mm.; tail 34 to 36 mm.; tarsus 14 to 15 mm.; culmen 16 to 18 mm.

**Female.** Upper plumage olive-yellow, the feathers of the head with concealed darker centres; below bright yellow, less golden than in the male, and suffused with green on the breast and flanks; wings and tail as in the male.

**Distribution.** Tenasserim South to Java, Sumatra, Borneo, Lombok, Flores, Nicobars and Malay Peninsula.

**Nidification.** The nests are very similar to those of the Indian Purple Sunbird and are attached to slender twigs of bushes a few feet from the ground. They have more grass used in their construction than is employed by the Purple Sunbird, but they have similar porches and similar untidy decorations which conceal the outlines of the nests and make them blend better with their surroundings. The eggs, two or three in number, have a pale yellowish-grey ground and are marked with blotches, lines and mottlings of reddish-brown, many looking as if they had run at the edges; the secondary marks are of grey or yellowish-grey and the general tone of these eggs is brown rather than grey as in *asiatica* eggs. The few eggs I have seen measure between 14·8 × 11·1 and 17·0 × 12·1 mm.

In the Nicobars they breed, so far as is known, in January and February. I have a nest and eggs taken in the Malay States in May and I am informed that they breed in Java and Sumatra from February to June or even July.

**Habits.** Those of the genus. In the Nicobars this is a forest bird keeping to the outskirts and thinner tracts but elsewhere this Sunbird is as much a frequenter of gardens and compounds as are the other species. It is very common in the Nicobars and equally so in Java and Sumatra and in some parts of the Malay States, though elsewhere it is said to be less so. Hume and Davison say that this Sunbird has a post-nuptial plumage acquired after the breeding-season in the same way as that of the Purple Sunbird by a moult of the body-feathers.

## (1283) Leptocoma ornata blanfordi.

THE KONDOL YELLOW-BREASTED SUNBIRD.

*Cyrtostomus pectoralis blanfordi* Stuart Baker, Bull. B. O. C., xli, p. 74 (1921) (Kondol Island).

**Vernacular names.** None recorded.

**Description.** Differs from the Malay Yellow-breasted Sunbird in having a much longer, heavier bill. It is also perhaps a rather brighter olive-green above.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 52 to 53 mm.; tail 34 to 36 mm.; tarsus 14 to 15 mm.; culmen 19 to 20 mm.

**Distribution.** Kondol Island only.

**Nidification** and **Habits.** Nothing on record.

## Leptocoma flammaxillaris.

*Key to Subspecies.*

A. Breast boldly banded with orange and black ..... *L. f. flammaxillaris*, p. 403.
B. Breast faintly banded only ..... *L. f. andamanica*, p. 404.

### (1284) Leptocoma flammaxillaris flammaxillaris.

THE BURMESE YELLOW-BREASTED SUNBIRD.

*Nectarinia flammaxillaris* Blyth, J. A. S. B., xiv, p. 557 (1845) (Tenasserim).
*Arachnechthra flammaxillaris.* Blanf. & Oates, ii, p. 362.

**Vernacular names.** *Nok-kin-plea-lek* (Siam).

**Description.—Male.** Upper plumage and edges to all wing-feathers olive-green, the upper tail-coverts a little more yellowish; wing-feathers brown; tail blackish, the central feathers narrowly, the others more boldly tipped with white; chin, throat and upper breast metallic purple, bordered all round with dark steel-blue; a band of orange-maroon on the lower breast followed by a broken band of black; pectoral tufts flame-red; remainder of lower parts bright yellow; under wing-coverts yellowish-white.

**Colours of soft parts.** Iris light brown to deep hazel; bill black, mouth salmon-colour; legs and feet black.

**Measurements.** Wing 51 to 55 mm.; tail 32 to 34 mm.; tarsus 14 to 15 mm.; culmen 15 to 17 mm.

**Female.** Like the male above but with the lower parts wholly a duller, paler yellow.

**Distribution.** Burma from Arakan on the West, Pegu and Tenasserim; East to Siam, Cochin China and the Malay Peninsula.

**Nidification.** This Sunbird was found breeding by Oates in Pegu in March and again in July and August whilst Darling took a nest in Tenasserim in February. In Siam Herbert says that he has obtained nests in every month of the year and that nesting is in full swing by early February and continues up to the end of August. The nest is attached to one of the outer branches of a tree or bush at any height between two and twenty feet from the ground. Herbert remarks: "In general appearance it resembles a collection of vegetable debris caught up on the branch in a wind; in fact the nest is a very clever representation of this. The first part of the structure is pear-shaped, strongly woven from

fibre with the ends left hanging down below; this is elaborately decorated with a loosely woven covering of all kinds of vegetable refuse which are connected with cobwebs and hang down some six inches below the bottom of the actual nest. The whole surface is often extensively overlaid with the woody refuse with which the wood-boring caterpillars cover the entrances to their holes. A little portico extends over the entrance to the nest and as this generally faces towards the sheltered part of the tree, the interior is very well protected from the weather."

The eggs number two only and the most common type has the ground a pale buffy-grey profusely marked all over with yellowish-brown or pale brown, in most eggs also there are a few spots of dark brown showing up boldly among the more ill-defined freckles. A few eggs have the ground bluish-grey and the markings more sparse and also bolder. Thirty-eight eggs average 15·4 × 11·1 mm.: maxima **16·2** × 11·8 and 16·1 × **12·0** mm.; minima **14·4** × 10·9 and 16·0 × **10·5** mm.

**Habits.** This is a very cheerful, lively little bird as energetic and as restless as the rest of the genus and like them haunting flowering shrubs in gardens and open forest. Herbert says that in Siam they are particularly numerous in the fruit-gardens round Bangkok, several pairs often feeding together. The note is the usual trill but both this and the song seem to be feebler than it is in the *L. asiatica* group. Although not recorded, there is no doubt that this Sunbird assumes a plumage similar to that of the female at the termination of the breeding-season, probably differing in having the underparts a brighter yellow with a mesial metallic stripe.

## (1285) Leptocoma flammaxillaris andamanica.

THE ANDAMAN SUNBIRD.

*Arachnechthra andamanica* Hume, Str. Feath., i, p. 404 (1873) (Andamans); Blanf. & Oates, ii, p. 363.

**Vernacular names.** None recorded.

**Description.—Male.** Differs from the preceding bird in having little or no red or black on the breast; the pectoral tufts are yellow and the abdomen and flanks are much paler and duller yellow; some birds have a small but distinct pale yellow supercilium.

In the non-breeding season the male assumes the plumage of the female, but is brighter yellow below and retains a metallic streak down the breast and abdomen.

**Colours of soft parts** as in the Burmese race.

**Measurements.** Wing 52 to 58 mm.; tail 32 to 38 mm.; tarsus 14 to 15 mm.; culmen 18 to 19 mm.

**Female.** Differs from the preceding bird only in having a longer bill.

**Distribution.** Andamans only.

**Nidification.** Osmaston, Wickham and Anderson found many nests of this Sunbird round about Port Blair. The first-named describes the nests as follows:—"The nests are oval in shape, the entrance hole being situated near the top and overhung by a portico of fine grasses. The nest is composed of a variety of materials, chiefly fine grasses, bits of dead leaves and vegetable fibres. It is lined with down or fine grass-stems. It hangs suspended from some twig or grass-stem, usually under an overhanging bank, often close to the ground, less frequently at some considerable height up in a shrub or tree." It breeds from February to May and sometimes in June and again in August, and probably have two or more broods in the year. The eggs are invariably two only in number and are very similar to those of the preceding race, but in this the great majority have a pale bluish ground-colour and are more sparingly yet more boldly and more handsomely marked than the eggs of that bird. Eighteen eggs in my collection average 16·7 × 11·7 mm., whilst 26 measured by Osmaston average 16·5 × 11·4 mm.: maxima **17·9** × 10·7 and 15·3 × **12·0** mm.; minima **15·3** × 12·0 and 17·9 × **10·7** mm.

**Habits.** An exceedingly common little bird throughout the Andamans, frequenting both forest, scrub-jungle and, wherever there are such, gardens and cultivated lands as, for instance, round Port Blair where it breeds in great numbers. It is said to be a bold, confiding Sunbird with the usual flight, voice and diet of the genus.

## (1286) Leptocoma minima.

THE SMALL SUNBIRD.

*Cinnyris minima* Sykes, P. Z. S., 1832, p. 99 (Deccan).
*Arachnechthra minima.* Blanf. & Oates, ii, p. 363.

**Vernacular names.** *Chota Shakar khora* (Hind.).

**Description.—Male.** Forehead to nape brilliant metallic green; lores and sides of the head dull black; back, scapulars and visible portions of lesser and median wing-coverts deep crimson; rump and upper tail-coverts brilliant lilac; tail black; greater wing-coverts and quills dull black; chin, throat and fore-neck metallic purple-lilac; breast and sides of neck crimson like the back; a black band across the lower breast; abdomen and flanks yellow, faintly washed on the flanks with olive; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris dark brown; bill, legs and feet black.

**Measurements.** Wing 46 to 48 mm.; tail 28 to 29 mm.; tarsus 13 to 14 mm.; culmen 12 to 14 mm.

**Female.** Upper plumage, sides of head and neck and visible portions of wing-coverts olive-green; rump and upper tail-coverts

deep maroon; tail black; wing-quills dark brown edged with olive; lower plumage all oily-yellow, brightest on the throat, breast and centre of the abdomen.

**The Young male** seems to acquire the adult plumage very irregularly. As a rule the crimson is acquired first, then the metallic rump and upper tail-coverts and lastly the metallic throat and crown.

**Distribution.** Ceylon and the South-Western Hills of India from the latitude of Bombay to the extreme South of Travancore. It does not occur East of the Deccan.

**Nidification.** The Small Sunbird breeds in Ceylon and Travancore in February, March and April, whilst in Kanara it breeds from December to April. In the Nilgiris it breeds in September and October but the nests and eggs recorded as taken by Davison were *not* those of this little Sunbird. The nests are very much the same as those of the Purple Sunbird but much smaller and, though the Purple Sunbird often uses some moss in their construction, this small Sunbird makes green moss his staple material. Davidson writes that they are "ornamented with broad bands of white material and suspended in nine cases out of ten at about three feet from the ground on the edge of a plant of *Strobilanthus*." Phillips took two undoubted nests of this little Sunbird near Anasigalla in Ceylon.

The eggs are nothing like those of the *L. asiatica* group, but have the ground a pure white, very rarely tinged with pink. The primary markings consist of reddish blotches, sparse elsewhere but dense in a zone round the larger end; the secondary marks are of pale reddish-grey, still more scanty in number. In fact the eggs are far more like those of *Æthopyga* than those of the other species of the genus *Leptocoma*. Twenty eggs average 14·0 × 10·2 mm.: maxima **14·5 × 10·4** mm.; minima **13·5 × 9·9** mm.

**Habits.** The Small Sunbird is similar to the other larger species of *Leptocoma* in its habits and, like most of them, is found both in thin forest, scrub and in gardens, though it does not seem to breed in the latter. Bourdillon found it in deep evergreen-forest in Travancore and says that there he never met with it in the true plains, though it is common in the broken ground at the foot of the hills and ascends to the highest peaks. In the Nilgiris also it is found from the bases up to about 8,000 feet.

## (1287) Leptocoma zeylonica.

THE PURPLE-RUMPED SUNBIRD.

*Certhia zeylonica* Linn., Syst. Nat., 12th ed. i, p. 181 (1766) (Ceylon).
*Arachnechthra zeylonica.* Blanf. & Oates, ii, p. 364.

**Vernacular names.** *Shakar khora* (Hind.); *Man choongi* (Beng.); *Than-kudi* (Tam.); *Mal sutika* (Cing.).

**Description.—Male.** Forehead, crown and lesser wing-coverts

mixed metallic green and purple-copper varying in degree according to the light; neck, sides of the head, back, scapulars and median wing-coverts deep dull crimson: rump and upper tail-coverts metallic purple-blue; tail black, the lateral feathers tipped with pale brown, broadly below, narrowly above; wing-quills and greater coverts brown with rufous edges; chin and throat metallic purple; a band of dull crimson and then one of black across the breast, the two often much mixed; breast, abdomen and under tail-coverts bright yellow; the flanks, axillaries and under wing-coverts greyish-white.

**Colours of soft parts.** Iris crimson to red-brown; bill, legs and feet black.

**Measurements.** Wing 51 to 54 mm.; tail 33 to 36 mm.; tarsus 15 to 16 mm.; culmen 13 to 16 mm.

**Female.** Upper plumage and wing-coverts ashy olive-brown; upper tail-coverts and tail black, the feathers of the latter tipped with pale brown as in the male; wing-quills and greater coverts brown edged with rufous; lower plumage as in the male but duller and with the chin, throat and sides of the head ashy-white; lores and a patch behind the eye dark brown; a small, indefinite supercilium whitish.

**Distribution.** Ceylon; India North to Bombay, throughout the Central Provinces and thence East to Chota Nagpur and Bengal as far West as Burdwan commonly and, rarely, to Calcutta, where I have myself seen it. It is common in Dacca and Faridpore and is said to occur in Assam but I never met with it during 30 years' residence in that Province. Inglis did not obtain it in Cachar or Primrose in Goalpara. It does not occur in Bihar. On the East of India its distribution is not satisfactorily worked out, but I have had eggs, nest and bird sent me from the Cuttack District of Orissa.

**Nidification.** The Purple-rumped Sunbird breeds throughout its habitat in practically every month of the year, though few nests will be found during the great heat of May, June and July. The nest is similar to that of the Purple Sunbird, and like that bird's, is often placed in a mass of cobweb so that it looks more like a mass of windblown odds and ends, caught by the cobwebs, rather than a bird's nest. On the whole it is built at greater heights from the ground, more often over ten feet than under, and often twenty, thirty feet or more high up on an outer slender branch of a big tree. The eggs number two, very exceptionally three, and cannot be distinguished from those of *L. asiatica* though a large series may average paler. Eggs boldly marked or with well-defined blotches are as rare in one as in the other. A hundred eggs average 16·4 × 11·8 mm.: maxima **18·0** × 12·2 and 17·0 × **12·7** mm.; minima **14·4** × 11·2 and 14·9 × **11·0** mm.

**Habits.** Similar to those of the Purple Sunbird. They frequent both forests, especially the thin deciduous Sal forests, cultivated lands and gardens, and have been known to build their nests inside

verandahs and buildings, though not nearly so commonly as does the Purple Sunbird. They are birds of the plains but ascend the Nilgiris, Palnis and other South Indian Hills up to some 2,500 feet and are found up to 3,000 feet in Travancore.

## Genus **ANTHREPTES.**

*Anthreptes* Swainson, Class. B. ii, p. 329 (1837).

Type, *Anthreptes malacensis* Scop.

This name antedates that of *Anthothreptes* Cabanis, 1850.

The genus *Anthreptes* differs from *Arachnechthra* in having a deeper and much straighter bill, the lower mandible being straight or almost so. The sexes differ in colour.

*A. hypogrammica* is rather different from any other species of this genus in its peculiar striped under plumage and should, perhaps, be removed to the genus *Hypogramma* (Reich. Handb. Scans. p. 314, 1850) created for this bird.

*Key to Species.*

A. Lower plumage streaked; males with no pectoral tuft ..... *A. hypogrammica*, p. 408.

B. Lower plumage plain; males with bright pectoral tufts.

*a*. Whole upper plumage metallic.

*a'*. Sides of head greenish-yellow .... *A. malacensis*, ♂, p. 409.

*b'*. Sides of head rufous ..... *A. rhodolæma*, ♂, p. 411.

*b*. Metallic plumage, if any, confined to head.

*c'*. Forehead and crown metallic green . *A. simplex*, ♂, p. 411.

*d'*. Forehead and crown like the back.

*a''*. Bill over 15 mm. ..... *A. malacensis*, ♀, p. 409. / *A. rhodolæma*, ♀, p. 411.

*b''*. Bill under 15 mm. ..... *A. simplex*, ♀, p. 411.

### (1288) Anthreptes hypogrammica hypogrammica.

THE BANDED SUNBIRD.

*Nectarinia hypogrammica* S. Müll., Verhand. Nat. Gesch., Zool. Aves, p. 173 (1843) (Sumatra).

*Anthothreptes hypogrammica*. Blanf. & Oates, ii, p. 365.

**Vernacular names.** None recorded.

**Description.—Male.** A collar on the hind-neck, rump and upper tail-coverts deep metallic blue; remainder of upper plumage, lesser and median wing-coverts yellowish olive-green; tail black, the lateral feathers tipped with white; wing-quills and greater coverts dark brown, edged with olive-green, the innermost secondaries nearly all this colour; chin, throat and fore-neck yellowish-grey, streaked with brownish-green; breast and abdomen yellow, streaked with the same; flanks, vent and under tail-coverts all brownish-green; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris dark brown; bill horny-black, the gape yellow in the male; legs and feet greenish-brown to dark plumbeous-green.

**Measurements.** Wing 62 to 68 mm.; tail 44 to 49 mm.; tarsus 17 to 18 mm.; culmen 17 to 19 mm.

**Female.** Similar to the male but with the hind-neck, rump and upper tail-coverts the same colour as the back.

**Distribution.** Western Burma from Akyab to Tenasserim, down the Malay States to Singapore; Sumatra and Borneo.

Fig. 77.—Head of *A. h. hypogrammica.*

**Nidification.** Moulton took a nest of this Sunbird near Sarawak on the 15th August. It was attached to the end of a leaf of a Betel palm over twenty feet from the ground and in general appearance was very like many nests of the Purple Sunbird, though there was no porch over the entrance. It was made of scraps of bark, lichen, dried moss, leaves and fibre bound together with cobwebs and adorned with the usual miscellaneous collection of bits, untidily attached by spiders' webs, with a lining of seed-down. It measured about eight inches long by about four to five wide. The two eggs are pale lilac-grey with a few blotches and many scriggly lines of purple-black mostly confined to a broad indefinite ring at the larger end; the secondary spots are of pale lavender and grey. They measure 18·0 × 13·0 and 18·0 × 13·2 mm.

**Habits.** Very little recorded. The birds frequent both open forest and gardens, feeding on flowering shrubs and also high trees and are said to be especially partial to flowering Betel-nut and Coco palms. Their diet is a combination of nectar and insects like that of other Sunbirds but insects form the greater portion. Their flight is said to be rather slower and heavier than that of the genus *Leptocoma.*

## (1289) Anthreptes malacensis malacensis.

THE BROWN-THROATED SUNBIRD.

*Certhia malacensis* Scop., Del. Flor. et Faun. Insubr., ii, p. 91 (1786) (Malacca).
*Anthothreptes malaccensis.* Blanf. & Oates, ii, p. 366.

**Vernacular names.** *Nok-kin-plea-yai* (Siam).

**Description.—Male.** Forehead, crown, back and sides of neck

metallic copper-violet with green reflections varying according to the light; rump, upper tail-coverts, lesser and median wing-coverts brilliant metallic purple-blue, scapulars and inner median wing-coverts brown with maroon tips; tail black with bluish reflections and with broad purple-blue edges to the central pair of feathers; greater coverts and wing-quills brown edged with olive-green or, generally, with maroon on the coverts; lores and sides of the head dull brownish-olive; chin, throat and fore-neck cinnamon-brown with a metallic purple stripe on either side; breast bright yellow tinged with green on vent, posterior flanks and under tail-coverts; axillaries and under wing-coverts very pale yellow.

**Colours of soft parts.** Iris red, crimson or dark brown; bill dark horny-brown to almost black, gape orange; legs and feet horny greenish-brown, greenish-plumbeous or dark dull green, claws brown.

**Measurements.** Wing 63 to 70 mm.; tail 47 to 49 mm.; tarsus 15 to 17 mm.; culmen 16 to 18 mm.

**Female.** Upper plumage yellowish olive-green, the feathers of the crown with dark centres; the lores and a patch under the eye more yellow; tail dark brown tipped very narrowly with paler and edged with rufous-olive; lesser wing-coverts like the back; other coverts and quills dark brown edged with rufous-olive; ear-coverts olive-green with pale shafts; lower plumage yellow, paler on the chin and throat and washed with green on the flanks, vent and under tail-coverts.

**Distribution.** Arakan, Tenasserim down the Malay States to Singapore and on the coastal islands; South Siam, Annam, Sumatra, Java and Borneo. With more material many island birds might be separable: thus a female from Sarri Island off Timor and again one from Siam have greyish throats whilst the males have very green breasts. For the present I retain all under the typical name.

**Nidification.** The Brown-throated Sunbird breeds practically throughout the year. Herbert and Williamson found nests with eggs from the 7th February to 6th September and Kellow took them near Taiping in January. The nests are oval or slightly pear-shaped and are made of fibre, roots and grass woven in with down and cobwebs and lined with finer grass, grass seeds and cotton-down. The entrance is protected in many cases with a rough, coarsely-made pad of fibre which projects over it but does not come down and semi-conceal it as it does in some Sunbirds' nests. The nests taken by Low in Borneo were all of the round or oval type and had no portico over the entrance. A very favourite site for building is the end of a leaf of a Betel-nut tree between 25 and 35 feet from the ground, but the nest may be attached to the end of a small branch of any tree or bush, sometimes within two or three feet of the ground. The eggs are always two and in ground-colour vary from pure white, which is rare,

to rather deep purplish-pink. The primary marks consist of numerous twisted lines of purple-black with secondary blotches and mottlings of lilac-grey and lavender. Fifty eggs average 17·3 × 12·6 mm.: maxima **19·5** × 12·3 and 18·4 × **13·3** mm.; minima **16·5** × 12·1 and 16·7 × **12·0** mm.

**Habits.** This is the most common and most widespread of the Malayan Sunbirds and is found all over the plains and lower hills up to some 3,000 feet. It keeps to open country, gardens and cultivation but is also sometimes found in thin forest or in the outskirts of dense evergreen-forests. It is said to be more of an insect-eater than the birds of the genus *Leptocoma*, but to be almost as active on the wing and in the way it climbs and clings when hunting the foliage for insects. Its voice is a weak chirrup, rather musical and frequently uttered.

## (1290) Anthreptes rhodolæma.

THE RUFOUS-THROATED SUNBIRD.

*Anthreptes rhodolæma* Shelley, Mon. Nect., p. 313 (1878) (Malacca).
*Anthothreptes rhodolæma.* Blanf. & Oates, ii, p. 367.

**Vernacular names.** None recorded.

**Description.—Male.** Similar to *A. m. malacensis* but with the crown and back metallic green, with more or less copper reflections; the under plumage is much more green; the extent of maroon on the wings is greater and the lores and sides of the head are suffused with this colour with a definite patch of maroon behind the upper part of the eye; the chin and throat are generally more crimson-rufous.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 65 to 70 mm.; tail 46 to 49 mm.; tarsus about 16 mm.; culmen 16 to 18 mm.

**Female** indistinguishable from that of the Brown-throated Sunbird.

**Distribution.** Tenasserim to Sumatra and Borneo; South and Peninsular Siam.

**Nidification** and **Habits.** Nothing recorded.

## Anthreptes simplex.

*Nectarinia simplex* S. Müll., Verhand. Nat. Gesch., Zool. Aves, p. 62 (1843).

Type-locality: Borneo.

The typical form differs from that found within our limits in being rather darker above and below.

## (1291) Anthreptes simplex xanthochlora.

THE PLAIN-COLOURED SUNBIRD.

*Anthreptes xanthochlora* Hume, Str. Feath., iii, p. 320 footnote (1875) (Pabyi, Tenasserim).
*Anthothreptes simplex.* Blanf. & Oates, ii, p. 367.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead metallic dark green; remaining whole upper plumage, wing-coverts and edges of quills olive yellow-green; wing-quills, except the edges, brown; sides of the head and lores ashy-green; chin, throat and fore-neck greyish-green, becoming a dull pale olive-yellow on the breast and abdomen, washed with ashy-green on the flanks and under tail-coverts; axillaries and under wing-coverts yellowish-white.

**Colours of soft parts.** Iris crimson-lake to brown; bill dark horny-brown; legs and feet pale reddish-green.

**Measurements.** Wing 59 to 61 mm.; tail 42 to 48 mm.; tarsus about 17 to 18 mm.; culmen 13 to 14 mm,

**Female.** Similar to the male but with no metallic dark forehead and decidedly smaller; wing only 51 to 57 mm.

**Distribution.** Peninsular Burma and Siam and Malay Peninsula.

**Nidification.** A nest taken by Hopwood at Maungmagan, near Tavoy, on the sea-coast, is described by him as "resembling a Munia's nest but larger and pendulous, the entrance hole near the top but without a portico; made principally of grass and fibre, the ends sticking out in all directions. The lining of silk-cotton, thickly felted and reaching up the sides of the nest to the top." This nest was taken on the 17th March. The two eggs contained in it measure $20{\cdot}1 \times 13{\cdot}0$ and $18{\cdot}6 \times 12{\cdot}9$ mm., and are probably exceptionally large. They are like rather dull, weakly marked eggs of *Anthreptes m. malacensis* and can be matched in colour by many of the latter.

**Habits.** Those of the genus. It is more an insect-eater than a honey- or nectar-sucker and may be seen busily hunting the foliage of mangrove and Betel-nut trees along the shore. It ascends the hills up to some 2,000 feet but it is typically a plains' and not a mountain bird. Hopwood found it more a forest bird than a haunter of gardens and fruit orchards, though it often enters these in searching for food.

## Subfamily ARACHNOTHERINÆ.

The Sunbirds of this Subfamily are characterized by a somewhat massive body, a long, powerful bill and non-metallic plumage. The sexes are alike or almost so. The tail is short and fairly well graduated. There is only one genus, represented within Indian limits by four species.

### Genus **ARACHNOTHERA.**

*Arachnothera* Temm., Pl. Col. pl. 388, note (1826).

Type, *Arachnothera chrysogenys* Temm.

In the genus *Arachnothera* the bill is long, about twice the length of the head or longer, stout and strongly curved, with the culmen ridged between the nostrils. The sexes are alike or almost so and the plumage in both is very largely green.

*Key to Species.*

A. Part of the sides of the head yellow ..... *A. chrysogenys*, p. 413.
B. No yellow on the sides of the head.
*a*. Upper plumage streaked ..... *A. magna*, p. 414.
*b*. Upper plumage not streaked.
*a'*. Lower plumage uniform ashy-green, faintly streaked ..... *A. affinis*, p. 417.
*b'*. Lower plumage yellow, chin and throat white ..... *A. longirostra*, p. 418.

### Arachnothera chrysogenys.

*Nectarinia chrysogenys* Temm., Pl. Col., pl. 388, fig. i (1826).

Type-locality: Java.

This form differs from that found in Tenasserim in being decidedly darker above and in being duller and more suffused with ashy on the breast and flanks.

### (1292) Arachnothera chrysogenys intensiflava.

The Tenasserim Yellow-eared Spider-Hunter.

*Arachnothera chrysogenys intensiflava* Stuart Baker, Bull. B. O. C., xlvi, p. 14 (1925) (Kossoom, Tenasserim).
*Arachnothera chrysogenys.* Blanf. & Oates, ii, p. 371.

**Vernacular names.** None recorded.

**Description.** Above olive yellowish-green, the feathers of the crown with concealed dark centres; coverts and quills dark brown

edged with the colour of the back but rather brighter; a short supercilium and lengthened tuft of feathers behind and above the gape brilliant yellow; ear-coverts, sides of head and neck like the back; chin, throat and upper breast ashy-green, the feathers edged with brighter yellow, the lower breast becoming more yellow and changing entirely to yellow on the abdomen, vent and under tail-coverts; flanks washed with ashy-green; axillaries and under wing-coverts pale dull yellowish.

**Colours of soft parts.** Iris brown; bill dark horny-brown, the edges of both mandibles yellowish to within about 15 mm. of the tip; legs and feet fleshy-white.

**Measurements.** Wing 77 to 88 mm.; tail 37 to 43 mm.; tarsus 17 to 18 mm.; culmen 34 to 38 mm,

**Distribution.** Tenasserim from Mergui South to Malacca and Singapore Island.

**Nidification.** Not known.

**Habits.** Very little recorded. Davison remarks that "it affects gardens more than any of the other species; in fact all our specimens were obtained in gardens and none about coco-nut groves and forest trees; and though, of course, it must occasionally occur about these also, I do not think I have ever observed it in forest or scrub jungle, or anywhere except in or about villages. In all its habits it resembles the other species."

## Arachnothera magna.

*Key to Subspecies.*

*a.* Back and rump distinctly streaked ..... *A. m. magna*, p. 414.
*b.* Back and rump indistinctly streaked ..... *A. m. aurata*, p. 416.

### (1293) Arachnothera magna magna.

The Indian Streaked Spider-Hunter.

*Cinnyris magna* Hodgs., Ind. Rev., ii, p. 272 (1837) (Nepal).
*Arachnothera magna.* Blanf. & Oates, ii, p. 369.

**Vernacular names.** *Dom-siriok-pho* (Lepch.); *Yedong-pichang* (Bhut.).

**Description.** Whole upper plumage and visible portions of wing-coverts olive-yellow; the crown to nape with black centres and lesser and median coverts the same; back and rump with broad blackish central streaks to each feather; tail olive-yellow with pale yellowish tips and broad blackish subterminal bands; sides of head like the back but paler; whole under plumage pale yellowish with bold black central streaks.

**Colours of soft parts.** Iris brown or red-brown; bill black; legs dull to clear orange-tan or orange-yellow.

**Measurements.** Wing 85 to 96 mm.; tail 46 to 64 mm.; tarsus 19 to 22 mm.; culmen 34 to 41 mm.

**Distribution.** Himalayas from the Sutlej Valley (*Stoliczka*) to the extreme East and South of Assam; Manipur, Lushai Hills, Chittagong Hill Tracts; Arakan, Chin Hills, Tenasserim as far South as Tavoy and the Thoungyin Valley.

Fig. 78.—Head of *A. m. magna*.

**Nidification.** The Indian Streaked Spider-Hunter breeds from the foot-hills of the Himalayas commonly up to some 4,000 feet and less often up to about 5,000 feet. Most eggs are laid between the 15th April and the end of June but I have taken eggs in the first week of March and again as late as the first week in September and possibly many birds have two broods. The nests are fastened to the under surface of some large leaf, in five instances out of ten under plantain leaves; in four out of ten under castor-oil leaves or dock leaves and, occasionally, under leaves of the giant creepers or other plants. Although the nests vary greatly in size they are all of the same description, neat compact nests made almost entirely of skeleton leaves, very strongly bound together with cobwebs, a few fine grasses, plantain and other fibres; the rim of the nest is attached to the under surface of the leaf with numerous fibres, cobwebs and cotton pulled through a hole made by the bird's beak and twisted into a knot on the upper side. The entrance is a semicircular hole and, as a rule, the rim of the nest on the hole side hangs some half inch away from the leaf. There is no real lining though a few fine grass bents may hold the leaves in their places. The size of the nest may be anything in diameter from 5 to 9 inches and in depth from 3 to 6 inches. In a few nests there are two entrances opposite one another. Both parents incubate and look after the young and both help in nest-building, though one, I think the female, seems to do all the actual building, her mate bringing the material. The cock-bird displays by hovering in front of his mate, all the plumage puffed out, the tail spread and the wings beating with intense rapidity. This continues for a few seconds and he then dashes vertically into the air, returns by a roundabout way and again hovers. Whilst thus engaged he continuously utters his loud, prolonged trill.

Two or three eggs are laid which vary greatly in colour. The majority have the ground-colour a dark sepia or pale vandyke-brown, but in most of these this colour is obliterated by innumerable specks of chocolate-brown so that the eggs look uniform brown or chocolate-brown. In most of these there are also at the larger end a few black specks, in some numerous enough to form a ring or cap. Other eggs have the ground grey or olive-grey, stippled all over with olive-brown; others have a pale olive-brown or olive-grey ground with comparatively bold specks or blotches of darker. One clutch I have is pale pink, stippled with pale reddish-brown; yet another deep purplish-pink freckled all over with reddish-brown. One hundred eggs average 22·7 × 15·95 mm.: maxima **24·2** × 16·2 and 24·0 × **16·4** mm.; minima **20·9** × 16·1 and 22·5 × **15·0** mm.

This bird is often cuckolded by *Hierococcyx sparveroides*, which deposits an egg extremely like that of the Spider-Hunter.

**Habits.** This Spider-Hunter is a bird of forests and broken country, seldom being found in the plains far from the foot-hills. It prefers, however, the outskirts of forests, the banks of fairly wide streams or glades where there is ample sunshine and many flowers and it will seldom be found in any place unless there is an ample supply of Plantain trees, the flowers of which form its favourite hunting-ground. It possibly feeds to some extent on nectar but undoubtedly its main diet is insects and spiders, the latter of which it seizes on the wing from their webs. Its flight is very strong and well sustained, though it progresses in long undulating dips, invariably uttering its loud musical trill as it flies, a call that can be heard from a great distance even in the forest. When plantains are cultivated round about villages they entice the Spider-Hunters to enter them and occasionally they will even breed within a few yards of one of the small villages of the Hill tribes.

## (1294) Arachnothera magna aurata.

THE PEGU STREAKED SPIDER-HUNTER.

*Arachnothera aurata* Blyth, J. A. S. B., xxiv, p. 478 (1855) (Pegu); Blanf. & Oates, ii, p. 370.

**Vernacular names.** None recorded.

**Description.** Similar to the Indian Streaked Spider-Hunter but the streaks on both upper and lower plumage are much less developed, almost obsolete on the lower back and rump.

**Colours of soft parts** as in the preceding bird.

**Measurements.** About the same size as the preceding bird.

**Distribution.** Pegu, Tounghoo, Thayetmyo, Salwin. This appears to be an East Central Burmese form ranging from about the latitude of Myingyan to Moulmein.

**Nidification.** Mackenzie, who is the only collector who has taken the nest of this Sunbird, describes it as follows: "The nest was on the under side of a leaf of a thorny climber (*Smilax macrophylla*, I believe). It was hung from the leaf by about 100 little threads of silk, each worked into the material of the nest, pushed through the leaf and knotted on the upper side. The threads ran all round the back and sides of the nest, but were especially numerous at the two ends of the rough semi-circle thus formed. The front was open, and the nest was so built that when the leaf was hanging naturally, there was a space of about $1\frac{3}{4}$ inches between the edge of the nest and the leaf in front. When I found it, it had been raining heavily but the inside was quite dry.

"The nest itself was a cup made of vegetable fibre, ornamented scantily on the outside with skeleton leaves and bits of bamboo leaf. Round the lip of the nest were several pieces of white, curly bark from bamboo spathes.

"The nest was $2\frac{3}{4}$ inches across at the tip, rather less from back to front. Externally it was $2\frac{3}{4}$ inches deep at the front and back and $3\frac{1}{4}$ at the sides.

"It was very compactly put together and lined with vegetable down, somewhat scantily, mixed with fine fibres."

The nest, which was at about six feet from the ground, was found on the 28th July, 1918, and in the following year Mackenzie took two more nests in July and one in August.

The eggs, two each in three nests and one in the fourth, are all of the brown type most common in the eggs of *A. m. magna*, but doubtless a large series might show a range of variation similar to that of that bird. They vary in size from $20{\cdot}0 \times 14{\cdot}5$ to $22{\cdot}1 \times 15{\cdot}5$ mm., and the seven eggs average $21{\cdot}4 \times 15{\cdot}2$ mm.

**Habits.** Exactly the same as those of the preceding bird but more exclusively a frequenter of evergreen-forest. Mackenzie refers to a habit which seems to be one noticeable in all the Spider-Hunters. Writing from Prome, he remarks: "The birds are by no means rare in this immediate locality and distinctly conspicuous from their habit of sitting on a branch, twisting their heads and stretching their necks, their figures appearing dumpy and unbalanced, owing to their long bills and short tails." It is found both in the plains country and up to at least 3,000 feet in the hills.

## Arachnothera affinis.

*Cinnyris affinis* Horsf., Trans. Linn. Soc., xiii, p. 166 (1820).

Type-locality: Java.

A slightly larger bird than the form found in the Malay States and Tenasserim, having the shaft-stripes on the throat and breast better marked.

## (1295) Arachnothera affinis modesta.

THE GREY-BREASTED SPIDER-HUNTER.

*Anthreptes modesta* Eyton, P. Z. S., 1839. p. 105 (Malaya).
*Arachnothera modesta.* Blanf. & Oates, ii, p. 370.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage and visible portions of wing bright yellowish-green; central tail-feathers darker, each with a blackish tip, lateral feathers blackish with yellowish-green bases and white tips; concealed portions of wing brown; feathers of forehead and fore-crown with dark centres; upper ear-coverts and sides of the neck olive-yellow; chin, throat and breast greenish-ashy, faintly streaked with dark brown; remainder of lower plumage paler, the under tail-coverts with broad yellow tips.

**Colours of soft parts.** Iris brown; upper mandible black, the lower reddish-horny to reddish-brown; legs and feet reddish-ochre to pale reddish-brown.

**Measurements.** Wing 72 to 85 mm.; tail 42 to 52 mm.; tarsus 18 to 20 mm.; culmen 32 to 35 mm.

**Distribution.** Tenasserim from Muleyit to the Malay Peninsula; Sumatra and Borneo.

**Nidification** unknown.

**Habits.** Very little recorded but, as far as is known, not differing from those of other Spider-Hunters. It is found both in evergreen and in light forest as well as in the groves of Coconut and Betel palms and, though apparently only rarely, in gardens.

## (1296) Arachnothera longirostra longirostra.

THE LITTLE SPIDER-HUNTER.

*Certhia longirostra* Lath., Ind. Orn., i, p. 299 (1790) (Bengal, Sylhet).
*Arachnothera longirostris.* Blanf. & Oates, ii, p. 371.

**Vernacular names.** None recorded.

**Description.** Upper plumage and lesser wing-coverts olive-green, the feathers of the forehead and crown centred with black; lores and a line over the eye greyish-white; a line from the gape blackish; sides of the head ashy-green; chin and throat greyish-white gradually changing to bright yellow on the lower breast and remainder of lower plumage; wing-feathers brown edged with olive-green; axillaries and under wing-coverts silky yellowish-white; pectoral tufts mixed chrome and orange-yellow.

**Colours of soft parts.** Iris dark brown; bill, upper mandible dark brown to almost black, lower mandible slaty-grey, palest next the gape; legs dark plumbeous.

**Measurements.** Male, wing 60 to 67 mm.; tail 39 to 44 mm.;

tarsus 17 to 18 mm.; culmen 35 to 41 mm. Female, wing 58 to 60 mm.; culmen 28 to 31 mm.

**Distribution.** Western coast of India from the Palni and Nilgiri Hills to Belgaum; East and South Assam, Eastern Bengal in Tippera, Chittagong and the Hill Tracts from Manipur to the Chin Hills; Burma South to the whole of the Malay Peninsula; Siam, Annam, Cochin China and Shan States.

Throughout the whole of this vast area I can find no character by which this species can be divided into geographical races.

**Nidification.** The Little Spider-Hunter breeds in Southern India principally in March and April between the level of the plains and, it is said, up to 5,500 feet. In Assam and Burma the principal breeding months are May and June, but the season is very extended and I have taken eggs in every month of the year from March to September and many birds have two broods. In Assam it very seldom breeds above 2,500 feet and its favourite haunts are the dense, humid evergreen-forests in the foot-hills and up to about 2,000 feet. The nest is exactly like that of the Indian Streaked Spider-Hunter, made entirely of skeleton leaves and attached to the underside of a leaf of a plantain, castor-oil tree, dock, kydia or almost any other large-leaved plant, whilst in Travancore Stewart found the nests built under the leaves of the elephant-grass. In Siam Herbert says that it breeds in the Winter months, building similar nests in similar positions.

The eggs are utterly unlike any other known eggs of the Spider-Hunters. The ground varies from white with the faintest tinge of pink to a warm salmon-pink, whilst the markings consist of specks of bright reddish-brown, sparse everywhere except in a dense, well-defined zone round the larger end. The only variation from these I have seen is a pair taken by Herbert which are pure white except for a zone of tiny purple-black specks. There is no gloss and the shell is very fragile. One hundred eggs average 18·5 × 13·1 mm.; maxima **19·1** × 13·1 and 18·1 × **13·9** mm.; minima **17·0** × 13·3 and 18·8 × **12·5** mm.

**Habits.** Although in Darjeeling it is said to be found up to 6,000 feet or even higher, the Small Spider-Hunter is ordinarily a bird of lower levels than the Indian Streaked Spider-Hunter. The latter is most common between 2,500 and 4,000 feet, the former between the plains and 2,000 feet. It also keeps more to evergreen-forests and, though it prefers the edges and more open places in these, I have seen it well inside them, both in the breeding and non-breeding season. It is a much more silent bird than the larger forms, though its notes are soft replicas of theirs and is uttered both on the wing and when at rest. Its flight is more direct and less dipping than that of most Spider-Hunters, but its display is similar to theirs. When "whirring" in front of the female the axillaries are displayed very prominently and are much more noticeable than at other times.

## Family DICÆIDÆ.

Both mandibles finely and evenly serrated on the terminal third of the edges; bill short and triangular with the nostrils exposed, but partly covered by a membrane; rictal bristles short; sometimes with only nine primaries, in which case the first is very long, sometimes with ten when the first is minute; rectrices twelve.

In this family there is but one moult annually; the sexes often differ considerably but in some species are alike: the young resemble the adult female.

The *Dicæidæ* form a link between the nine-primary and ten-primary *Passeres* but are separated from all other families, except the *Nectariniidæ*, by the serrated margins to their bills, a feature not present in their nearest relatives the *Zosteropidæ* and *Chalcoparüdæ*.

Fig. 79.—Bill of *D. cruentatum* (enlarged), to show serrations on mandibles.

*Key to Genera.*

A. With nine primaries, the first reaching to tip of wing.
  *a*. Bill slender; the lower line of lower mandible almost straight ..... DICÆUM, p. 421.
  *b*. Bill thick; lower mandible swollen with its lower line angulate.
    *a'*. Tail rounded; nostrils covered by long hairs ..... ACMONORHYNCHUS, p. 433.
    *b'*. Tail square; nostrils bare of hairs. PIPRISOMA, p. 434.
B. Wing with ten primaries, the first one small.
  *c*. First primary about equal in length to tarsus ..... PRIONOCHILUS, p. 437.
  *d*. First primary not longer than hind toe..... PACHYGLOSSA, p. 439.

## Genus **DICÆUM.**

*Dicæum* Cuvier, Règne An., i, p. 410 (1817).

Type, *Dicæum cruentatum* Linn.

The genus *Dicæum* contains six species of Indian birds, characterized by the possession of nine primaries and a slender bill of which the lower line of the lower mandible is practically straight, In this genus some of the species have males brightly coloured and the sexes different, whilst in others both sexes have plain-coloured plumage and are similar.

*Key to Species.*

| | |
|---|---|
| A. Upper plumage with some red or orange in it. | |
| *a.* Whole upper plumage scarlet-crimson | *D. cruentatum*, ♂, p. 421. |
| *b.* Rump only scarlet-crimson ..... | *D. cruentatum*, ♀, p. 422. |
| *c.* Rump and back orange-red ..... | *D. trigonostigma*, ♂, p. 424. |
| *d.* Rump only orange-yellow ..... | *D. trigonostigma*, ♀, p. 424. |
| B. Upper plumage without any red or orange in it. | |
| *e.* Lower plumage streaked ..... | *D. chrysorrheum*, p. 426. |
| *f.* Lower plumage not streaked. | |
| *a'*. Bill dark in colour, or quite black. | |
| *a''*. A patch of red on breast ..... | *D. ignipectum*, ♂, p. 428. |
| *b''*. No red on breast. | |
| $a^3$. Rump yellowish-green, contrasting with darker green of back..... | *D. ignipectum*, ♀, p. 428. |
| $b^3$. Rump concolorous with back . | *D. minullum*, p. 429. |
| *b'*. Bill yellow ..... | *D. erythrorhynchum*, p. 432. |

## Dicæum cruentatum.

*Key to Subspecies.*

| | |
|---|---|
| A. More fulvous below, especially in the female. | *D. c. cruentatum*, p. 421. |
| B. Less fulvous below, especially in the female. | *D. c. ignitum*, p. 423. |
| C. Still whiter below, especially in the males. . | *D. c. siamensis*, p. 424. |

### (1297) Dicæum cruentatum cruentatum.

THE INDIAN SCARLET-BACKED FLOWER-PECKER.

*Certhia cruentata* Linn., Syst. Nat., 10th ed. i, p. 119 (1758) (Bengal, Calcutta).
*Dicæum cruentatum.* Blanf. & Oates, ii, p. 376 (part).

**Vernacular names.** *Daomoji gajao* (Cachari).

**Description.—Male.** Forehead, crown, back, rump and upper tail-coverts crimson-scarlet; tail black, with a blue sheen on the exposed parts; scapulars, lesser and median wing-coverts, edges of greater coverts and quills metallic blue-green; remaining

parts of wing-feathers black; lores, supercilium, sides of head, neck and breast black; flanks ashy; chin, throat, breast, abdomen and under tail-coverts pale buff, varying a good deal in depth of colour; axillaries and under wing-coverts white. Occasionally a speck of red is visible on the throat.

**Colours of soft parts.** Iris dark brown; eyelids plumbeous; bill, legs and feet black; the mouth in the female is flesh-coloured.

**Measurements.** Wing 46 to 51 mm.; tail 25 to 28 mm.; tarsus about 13 mm.; culmen 8 to 9 mm.

**Female.** Whole upper plumage dull fulvous olive-brown; in some specimens, probably very old birds, with a rufous wash; rump and upper tail-coverts scarlet-crimson; tail black, with a bluish tinge; wings dark brown, all the feathers edged fulvous-brown; lower plumage buff, washed with ashy-brown on the flanks and sides of the neck and breast; axillaries and under wing-coverts white.

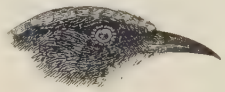


Fig. 80.—Head of *D. c. cruentatum*.

**Distribution.** East Nepal to Eastern and Southern Assam; East Bengal to Dacca, Chittagong and Tippera; Manipur, Lushai and Northern Chin Hills. How far East and South this form is found is uncertain.

**Nidification.** This little Flower-pecker breeds from early April to the middle of August but, though the season is so extended, I do not think they have two broods. It breeds in the plains and up to about 4,000 or, perhaps, 4,500 feet, frequenting both the edges of evergreen-forest, open glades and cultivated lands and is especially partial to fruit orchards. The nest is a tiny egg-shaped affair of snow-white down, generally taken from the cotton-tree. This material is held together with cobwebs and is strengthened where attached to the supporting twig by fine strips of grass, thread-like roots and a reddish fibre. In the same way the rim of the entrance is wound about with the same materials, as otherwise it would be too delicate to stand the constant ingress and egress of the birds. The nest may be anything between $3\frac{1}{2}$ and $4\frac{1}{2}$ inches high by $2\frac{1}{2}$ to $3\frac{1}{2}$ inches wide and may be fixed to any kind of branch between 5 and 50 feet from the ground, but it is always attached to the end or close to it. The eggs number two or three and once Coltart found four. They are white and quite spotless but, when first laid, have a grey tinge which at once separates them from Munia's eggs, for which, otherwise, they might easily be mistaken. This grey tint fades in a few years and they then become a dead-white. Forty eggs average 14·0 ×

10·3 mm.: maxima **15·3×11·1** mm.; minima **13·1×10·2** and **13·3×10·0** mm.

**Habits.** The Flower-peckers of this genus are all more or less arboreal in their habits, generally frequenting very high trees and keeping much to the tops even of these. They do, however, often come down to scrub- and low bush-jungle when food is plentiful in such places and I have even seen them in tall grass. Favourite hunting-grounds are the masses of parasitic plants, looking like bunches of mistletoe, high up in the branches of tall trees. Here they hunt about for the small insects which form their main food-supply, varied with small berries and seeds, especially those of the latter which are enclosed in jelly-like substances. They are not gregarious, though sometimes a couple of pairs may be seen together and, when first hatched, the young keep with the parents for some weeks. They utter a constant twittering when feeding and also have a shrill chirp, employed when the birds get separated. Their flight is extremely swift and powerful for so tiny a bird but I have never seen them hover before flowers when feeding.

## (1298) Dicæum cruentatum ignitum.

THE BURMESE SCARLET-BACKED FLOWER-PECKER.

*Nectarinia ignita* Begbie, "Malay Pen.", p. 518 (1834) (Malay Peninsula).
*Dicæum cruentatum.* Blanf. & Oates, ii, p. 376 (part).

**Vernacular names.** None recorded.

**Description.** Only differs from the preceding bird in being less buff on the lower surface, more especially in the females. The individual variation in this respect is very great, but in no females from Burma southwards does the under surface of the females approach the uniform deep buff of the few females available for comparison from the type-locality of *D. c. cruentatum.* As one works farther South the tone of the lower plumage becomes less buff and more grey, Javan and Sumatran birds being wholly grey below and generally easily separable.

**Colours of soft parts** as in the preceding bird.

**Measurements.** Wing 45 to 50 mm.

**Distribution.** The whole of Burma except the Northern Chin Hills; Shan States, Malay Peninsula to Java and Sumatra.

**Nidification.** Oates found this Flower-pecker breeding in some numbers in Pegu, making their nests, similar to those of the Indian Scarlet-backed Flower-pecker, high up in trees, very frequently in Mango trees. He remarks on the skill with which the nest is concealed under the drooping leaves, a skill shown equally well by almost every member of this genus. Oates also says that in the Burmese bird the exterior of the nest is often decorated with a few oddments such as excretæ of caterpillars,

small dry blossoms etc. This is a feature I have never seen in the nest of the Indian bird. The breeding-season is from February to the middle of April. The eggs taken by Oates vary in length between 14·0 and 16·7 mm., and in breadth between 9·7 and 10·7 mm. One egg in my collection is still smaller and measures only 13·1 × 10·6 mm.

**Habits.** Similar to those of the preceding race and, like that bird, ascends the hills to about the same elevation.

## (1299) Dicæum cruentatum siamensis.

THE SIAM SCARLET-BACKED FLOWER-PECKER.

*Dicæum cruentatum siamensis* Kloss, Ibis, 1918, p. 216 (Lat Bua Kao, Eastern Siam).

**Vernacular names.** *Nok-a-chip-suan* (Siam).

**Description.** The male differs from each of the other forms in its very pale lower parts, almost pure white without any trace of buff.

**Colours of soft parts** as in the other races.

**Measurements.** The same as in the other races.

**Distribution.** Siam and Annam. A few specimens from Eastern Tenasserim must be referred to this race.

**Nidification.** Herbert found the Siam Scarlet-backed Flower-pecker breeding abundantly in the fruit groves and flower gardens round about Bangkok. The nest is much like that of the other races but seems to have more fibre and cobweb in its construction and to be even more freely decorated externally with various scraps, chiefly the "woody refuse from the entrance-holes of wood-boring caterpillars." The breeding-season is January and February and in the latter month of 1920 Herbert saw no less than ten of their nests in the Bansukai Gardens. Like the other races they lay two or three eggs, quite indistinguishable in any way from those already described. Ten eggs average 14·1 × 10·6 mm.; maxima **15·0 × 11·1** mm.; minima **13·6 × 10·0** mm.

Herbert records that this race breeds most often on fruit-trees between 15 and 20 feet from the ground, whilst he has also taken a nest from a lime-bush within four feet of it.

**Habits.** Those of the species, but they seem to keep more entirely to cultivated and open lands rather than forests.

## Dicæum trigonostigma.

*Certhia trigonostigma* Scop., Del. Flor. et Faun. Insubr., ii, p. 91 (1786).

Type-locality: Malacca.

The typical form differs from *D. t. rubropygium* in having the rump orange-yellow contrasting with the back.

## (1300) Dicæum trigonostigma rubropygium.

THE TENASSERIM ORANGE-BELLIED FLOWER-PECKER.

*Dicæum trigonostigma rubropygium* Stuart Baker, Bull. B. O. C., xli, p. 108 (1921) (Mergui).
*Dicæum trigonostigma.* Blanf. & Oates, ii, p. 377.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, crown, nape, upper back, sides of the head and neck deep grey-blue; lower back flaming scarlet grading to scarlet-orange on the rump and shorter upper tail-coverts; longer tail-coverts grey-blue; tail black; visible portions of the closed wing like the upper back; concealed portions black; chin, throat and upper breast pale grey; lower breast, abdomen, flanks and under tail-coverts bright orange; axillaries and under wing-coverts chalky-white.

**Colours of soft parts.** Iris brown; bill, legs and feet black.

**Measurements.** Wing 45 to 51 mm.; tail 24 to 27 mm.; tarsus about 13 mm.; culmen 9 to 10 mm.

**Female.** Upper plumage olive-green, changing to orange-yellow on the rump, where the tips of the feathers are orange-red; chin, throat, upper breast and flanks ashy, tinged with green; lower breast, abdomen and under tail-coverts yellow; wing-coverts like the back; quills black, edged with the colour of the back; tail black.

**Colours of soft parts.** Iris grey to dark brown; upper mandible dark horny-brown, paler and reddish at the base and on the lower mandible; legs and feet greenish-horny to dark plumbeous.

**Distribution.** South Burma; South-West Siam; Malay Peninsula, North of 10° lat.; Lakhimpur in Assam.

**Nidification.** We obtained three or four nests of this Flower-pecker in the Dibrugarh District of Assam and Kellow took others near Perak in the Federated Malay States. All were built on the fringes, or in glades, of heavy evergreen-forest and were attached to branches of tall trees at about 35 to 40 feet from the ground; the one exception was on a bush close to a jungle-track about five feet from the ground. The nests differ from those of the preceding species only in being larger. They are equally beautiful and equally well hidden. The eggs can only be distinguished from those of *D. cruentatum* by their greater size. Ten eggs average 15·5 × 11·25 mm.: maxima **17·6 × 11·9** mm.; minima **14·3 × 10·8** mm. In Assam most were taken in April and May and in the Malay States in February and May.

**Habits.** Those of the genus. The distribution of this Flower-pecker is rather remarkable as it occurs in Assam, in a very restricted area, and then does not again appear until we get to the Karen Hills and Pegu. Possibly it will eventually be found

over the whole of the intervening country where well forested. It occurs and breeds in the plains and must ascend the hills to at least 4,000 feet.

## Dicæum chrysorrheum.

*Dicæum chrysorrheum* Temm., Pl. Col., pl. 478, fig. i (1829).

Type-locality : Java.

The Javan bird is darker above than either of the Indian forms.

*Key to Subspecies.*

A. Brighter, more yellow above; below more strongly tinged with yellowish..... *D. c. intensum*, p. 426.
B. Darker above; only faintly tinged with yellowish below ..... *D. c. chrysochlore*, p. 427.

## (1301) Dicæum chrysorrheum intensum.

The Sikkim Yellow-vented Flower-pecker.

*Dicæum chrysorrheum intensum* Stuart Baker, Bull. B. O. C., xli, p. 108 (Native Sikkim).
*Dicæum chrysorrhœum*. Blanf. & Oates, ii, p. 378.

**Vernacular names.** None recorded.

**Description.** Whole upper plumage and lesser wing-coverts olive-yellow, a little brighter on the rump; tail black, edged narrowly with olive-yellow; greater and primary coverts black with narrow paler tips; primaries black, very narrowly edged with whitish; secondaries black with green margins, the innermost being nearly all of this colour; lores white above, dusky below; a broad moustachial streak greenish-black; chin, cheeks and throat white; remaining lower plumage yellowish-white, boldly streaked with greenish-horn or blackish; under tail-coverts orange; axillaries and under wing-coverts white.

**Colours of soft parts.** Iris orange to scarlet; upper mandible and tip of lower black, remainder of lower mandible pale plumbeous; legs and feet dark plumbeous; claws horny-brown.

**Measurements.** Wing 55 to 62 mm.; tail 27 to 31 mm.; tarsus about 14 mm.; culmen 8 to 9 mm.

**The Female** generally has the under tail-coverts less deep an orange, but this character is not consistent.

**Distribution.** Eastern Nepal to extreme East and South Assam; Manipur, Lushai Hills, Chittagong and Hill Tippera in Eastern Bengal.

**Nidification.** In Assam the Yellow-vented Flower-pecker breeds in May, June and July, making a nest similar to that of the other Flower-peckers of the genus but generally with a good deal of fibre and grass in the body of the nest and, very often, with a few

DICAEUM C. INTENSUM, ¾ life size.
The Sikkim Yellow-vented Flower-pecker

scraps of green moss on the outside. In size the nests average about $4\frac{1}{2}$ inches long by about $3\frac{1}{2}$ wide, but sometimes are considerably larger than this. The birds are not so addicted to placing their nests very high up in trees and more will be found under 20 feet rather than over. They lay two or three eggs, white like all *Dicæum* eggs; sixteen average $15{\cdot}3 \times 11{\cdot}0$ mm.: maxima $\mathbf{16{\cdot}0} \times 11{\cdot}1$ and $15{\cdot}0 \times \mathbf{11{\cdot}4}$ mm.; minima $\mathbf{14{\cdot}5} \times \mathbf{10{\cdot}5}$ mm.

It breeds between 2,500 and 5,000 feet, possibly considerably higher than this, but definite records are wanting.

**Habits.** Those of the genus. This Flower-pecker seems to keep entirely to the hills and does not wander into the plains in the coldest months. We procured it in the broken ground round about Margherita in January and February at about 700 to 1,000 feet elevation and it certainly occurs in the Naga Hills up to 8,000 feet in summer. In North Cachar we noticed that it frequented orchids when in flower, feeding on the tiny *coleoptera* which sometimes swarmed in their beautiful blossoms.

## (1302) Dicæum chrysorrheum chrysochlore.

THE BURMESE YELLOW-VENTED FLOWER-PECKER.

*Dicæum chrysochlore* Blyth, J. A. S. B., xii, p. 1009 (1843) (Arrakan).
*Dicæum chrysorrhœum.* Blanf. & Oates, ii, p. 378 (part).

**Vernacular names.** None recorded.

**Description.** Differs from the preceding bird in being a little darker above and decidedly less suffused with yellow below; in the great majority of specimens, also, the under tail-coverts are paler, more yellow, less orange.

**Colours of soft parts** as in the other races.

**Measurements.** As in the preceding race.

**Distribution.** Burma, Siam, and Malay Peninsula North of 10° lat.

**Nidification.** Nothing recorded.

**Habits** In Burma this Flower-pecker occurs from the foot-hills up to about 5,000 feet; it is common in parts of the Karen Hills at 3,000 feet and perhaps higher but, unlike the Indian race, it extends also over the greater part of the plains of Burma. There is nothing in its habits to distinguish it from the better known Indian form.

## (1303) Dicæum ignipectum ignipectum.

THE FIRE-BREASTED FLOWER-PECKER.

*Myzanthe ignipectus* (Hodgs.), Blyth, J. A. S. B., xii, p. 983 (1843) (Nepal).
*Dicæum ignipectus.* Blanf. & Oates, ii, p. 378.

**Vernacular names.** *Sangti-pro-pho* (Lepcha).

**Description.—Male.** Whole upper plumage, wing-coverts and edges of quills deep metallic green-blue, the green generally dominant; tail black, suffused with blue and edged greenish; quills black: lower plumage rich buff, washed with greenish on the flanks; a patch of crimson on the breast and below this a patch of black, sometimes prolonged down the centre of the abdomen; under wing-coverts and axillaries white.

**Colours of soft parts.** Iris dark brown; bill black, paler and plumbeous at the base in the female; legs and feet dark brown to almost black.

**Measurements.** Wing 47 to 51 mm.; tail 24 to 27 mm.; tarsus about 12 mm.; culmen 7 to 8 mm.

**Female.** Above olive grass-green, the crown with concealed dark centres and the lower back and rump more yellow; sides of the head and neck ashy-green; lower plumage buff, paler on the throat and washed with ashy-green on the flanks and sides of the breast; wing-coverts and innermost secondaries like the back, quills black edged with green; axillaries and under wing-coverts white.

**Distribution.** Himalayas from the Sutlej Valley to Eastern Assam, Manipur and South Assam; the mountains of Burma to Tenasserim, Siam, Annam, Yunnan to Foochow and Fohkien. Over all this range I can see no character by which geographical races can be made, but more material would probably show the North-West Himalayan bird to be paler below, a less rich buff in both males and females.

**Nidification.** The Fire-breasted Flower-pecker breeds all along the Himalayas from about 5,000 feet up to 12,000 during the months March to early June. The nest is like that of the other birds of this genus, but I have seen a little green moss used internally on the nests. Whymper describes them well as "a network of fibre densely lined with cotton-down which shows through everywhere." A very favourite site seems to be a rocky ravine running through dense forest—and the nests are usually built on trees between ten and twenty feet from the ground. Two or three white eggs are laid; fourteen of these average 14·8 × 10·3 mm.: maxima **16·6** × 10·0 and 14·1 × **10·9** mm.; minima **13·7** × 10·4 and 16·6 × **10·0** mm.

**Habits.** These differ in no way from those of other Flower-peckers except that it ascends to higher elevations than any other *Dicæum*. Forrest found it up to 13,000 feet on the Lichiang Range in Yunnan; it occurs in Sikkim up to 12,000 feet and nearly up to this height in the Garhwal ranges.

## Dicæum minullum.

*Dicæum minullum* Swinhoe, Ibis, 1870, p. 240.

Type-locality: South Hainan.

The typical form is greyer throughout below and a duller browner green above than in the races which come into our area. It is very close to *D. m. olivaceum*.

*Key to Subspecies.*

A. Lores and forehead whitish.
  *a*. White forehead narrow: below a little darker ..... *D. m. concolor*, p. 429.
  *b*. White forehead broad and conspicuous; below a little paler and more yellow .. *D. m. subflavum*, p. 430.
B. Lores and forehead dusky or green.
  *c*. Abdomen and breast practically the same colour, never contrasting ..... *D. m. olivaceum*, p. 430.
  *d*. Abdomen yellow, contrasting with the grey of the breast ..... *D. m. virescens*, p. 431.

### (1304) Dicæum minullum concolor.

THE NILGIRI FLOWER-PECKER.

*Dicæum concolor* Jerdon, Madr. Journ. L. S., xi, p. 227 (1840) (Malabar Coast); Blanf. & Oates, ii, p. 379.

**Vernacular names.** *Chittu-jitta* (Tel.).

**Description.** Lores, forehead and a line to the back of the eye sullied white; whole upper plumage dull olive-green, the feathers of the crown with darker centres and the rump generally more yellowish; wing-feathers brown edged with olive-green; tail dark brown, narrowly edged with green; sides of head and neck ashy-olive; lower plumage pale ashy suffused with yellow, especially on the abdomen; axillaries and under wing-coverts white.

The white lores and forehead seem to become very quickly abraded and inconspicuous.

**Colours of soft parts.** Iris dark brown or crimson-brown; bill lavender-blue, darker and browner on the culmen; legs and feet dark plumbeous or plumbeous-blue.

**Measurements.** Wing 48 to 53 mm.; tail 24 to 26 mm.; tarsus about 12 mm.; culmen 9 to 10 mm.

**Distribution.** Western coast of India from Travancore to the Nilgiri and Palni Hills and North along the coast to South Kanara and North Kanara (Sirsi).

**Nidification.** The Nilgiri Flower-pecker breeds from the foot-hills in Southern India practically up to the summits of the highest of the Nilgiri, Palni and other ranges. It breeds in compounds, open country and in thin forest, making the usual little oval nest of fibre and down. When built within ten or

fifteen feet of the ground it is always well concealed in the foliage but when built, as it often is, at great heights up in trees, concealment is not attempted. The eggs, two in number, hardly ever three, are white and twenty eggs average 14·7 × 10·6 mm.: maxima **16·2** × 10·6 and 14·5 × **11·1** mm.; minima **14·0** × **10·1** mm. The breeding-season lasts from February to April, but many birds have second broods in May and June.

**Habits.** Those of the genus. It does not occur in the plains but Bourdillon says that though more common in the hills it is found frequently "in the low country and foot-hills where they are well wooded, broken up and rough."

## (1305) Dicæum minullum subflavum.

THE BELGAUM FLOWER-PECKER.

*Dicæum minullum subflavum* Stuart Baker, Bull. B. O. C., xlii, p. 12 (1921) (Belgaum).
*Dicæum concolor.* Blanf. & Oates, ii, p. 379 (part).

**Vernacular names.** *Chittu-jitta* (Tel.).

**Description.** Similar to the Nilgiri Flower-pecker but a little paler and more green above with a much broader and more conspicuous white forehead, the white being produced as a supercilium to *behind* the eye; below it is slightly more yellow and paler.

**Colours of soft parts** as in the Nilgiri form.

**Measurements.** Wing 46 to 49 mm.

**Distribution.** Belgaum, North to Khandala and Mahabaleshwar; East to the Central Provinces.

**Nidification.** The only nest I have seen of this race was just like that of *D. m. concolor* and contained two eggs measuring 14·6 × 10·6 and 14·8 × 10·7 mm. It was taken on the 17th February.

**Habits.** Those of the genus.

## (1306) Dicæum minullum olivaceum.

THE PLAIN-COLOURED FLOWER-PECKER.

*Dicæum olivaceum* Walden, Ann. Mag. N. H. (4) xv. p. 401 (1875) (Tounghoo); Blanf. & Oates, ii, p. 380.

**Vernacular names.** *Bongfang daotisha* (Cachari).

**Description.** Similar to the Nilgiri Flower-pecker but much darker both above and below, the lower surface being a dull ashy-green with a slight buffy-yellow wash.

**Colours of soft parts.** Iris deep brown; bill plumbeous, the culmen and tip dark horny-brown; legs and feet dark plumbeous or slate-colour.

**Measurements.** As in the Belgaum Flower-pecker.

**Distribution.** The Himalayas from Nepal East to Assam, both North and South; Manipur; the Hills of Burma, throughout the Malay Peninsula; Siam, Shan States, Yunnan, Annam and South China.

Individual variation in this race is considerable but I can find no constant character by which further division into geographical races can be made. Freshly moulted specimens are much brighter and greener than faded ones and again some individuals in the same stage of plumage are much darker than others.

**Nidification.** The Plain-coloured Flower-pecker breeds from the level of the plains, probably often in the plains themselves, up to about 6,000 feet but is most common from the foot-hills up to about 3,000 feet. Like most of the other *Dicæums* it especially frequents fruit groves and, above all orange groves, for breeding purposes but it also breeds in cultivated country, thin forest and the outskirts of heavy evergreen-forest. I have found its nest at all heights above the ground; once at least in weeds and grass within a few inches of it and often over 40 feet in high trees. The nest is exactly like that of *D. cruentatum* and the other races of *Dicæum* and needs no separate description. I have seen nests with eggs on the 12th March and others in early August, but May and June are the two principal laying months. The grey-white eggs, two or three in number, average, for forty, 14·5 × 10·6 mm.: maxima 15·9 × 10·4 and 15·7 × 11·1 mm.; minima 13·0 × 9·9 mm.

**Habits.** This is a very common little bird in Assam, but apparently less so over the rest of its range though it seems to be resident wherever found. It is common and breeds in the plains of Assam not very far from the hills and occurs up to the summits of the Southern hills and up to some 6,000 or 7,000 feet on the more Northern ranges. Its favourite resorts are orange groves and clumps of trees covered with parasites. When the oranges are in flower it feeds largely on nectar as well as insects and at other times diligently searches the orange-leaves and parasitic plants for insects. It is an excessively energetic, restless little bird, turning and twisting about in every kind of attitude as it quests for its food. Its note when feeding is the usual twitter of the genus and when flying from one tree to another it utters a constant *chip, chip, chip.* They keep in pairs, but even where common and several pairs may be seen feeding on the same big tree it is rare to see two pairs together in the same patch of parasitic plant.

## (1307) Dicæum minullum virescens.

THE ANDAMANESE FLOWER-PECKER.

*Dicæum virescens* Hume, Str. Feath., i, p. 482 (1873) (Port Blair, Andamans); Blanf. & Oates, ii, p. 380.

**Vernacular names.** None recorded.

**Description.** Above very similar to the Nilgiri Flower-pecker but brighter and greener than this or any other race; the lores are dusky-white but there is no white on the forehead and only the merest trace above the eye; below, this race differs from all others in having the abdomen bright pale yellow, contrasting with the pale grey of the breast.

**Colours of soft parts.** Similar to the same in *D. m. concolor*.

**Measurements.** Wing 43 to 48 mm.

**Distribution.** Andaman Islands.

**Nidification.** Nothing recorded.

**Habits.** The same as those of other Flower-peckers of the genus.

## Dicæum erythrorhynchum.

*Key to Subspecies.*

A. Paler above ..... *D. e. erythrorhynchum*, p. 432.
B. Darker above ..... *D. e. ceylonensis*, p. 433.

### (1308) Dicæum erythrorhynchum erythrorhynchum.

TICKELL'S FLOWER-PECKER.

*Certhia erythrorhynchos* Lath., Ind. Orn. i, p. 299 (1790) (India).
*Dicæum erythrorhynchus.* Blanf. & Oates, ii, p. 381.

**Vernacular names.** *Sungti-pro-pho* (Lepch.).

**Description.** Upper plumage and lesser wing-coverts ashy-olive, the feathers of the crown with dark centres; tail dark brown, very narrowly edged with olive; wing-feathers dark brown, edged with the colour of the back; sides of the head, lores and under plumage ashy buffy-white; axillaries and under wing-coverts white.

**Colours of soft parts.** Iris brown; bill livid fleshy, horny-brown near the tip of the upper mandible; legs and feet plumbeous or bluish-slaty.

**Measurements.** Wing 47 to 51 mm.; tail 21 to 24 mm.; tarsus about 11 mm.; culmen 9 to 10 mm.

**Distribution.** Northern India from Dehra Dun and Dharmsala to Dacca and Calcutta and Northern Assam to Dibrugarh; the whole of Bengal and Bihar, United Provinces, Punjab, through the Bombay Presidency to the Palni Hills; Mysore and Central India. There are no specimens in the British Museum collection from anywhere in the East of India South of Bengal. It has been recorded from Arakan and Tenasserim and has also been obtained in the Shan States.

The type-locality may be restricted to Bombay.

**Nidification.** Tickell's Flower-pecker is resident wherever found, breeding from February to June and often having two

broods in the year. Typically it is *not* a forest bird, breeding in the open, cultivated country round villages and towns; occasionally, however, it breeds in fairly thick forest and Davidson found it not uncommon in the well-wooded ravines of the Kanara district of Bombay. Its favourite building site is a mango-tree standing in a mango grove, sometimes placing its nest not five feet from the ground, at other times building it forty feet up on one of the smaller branches. Wherever placed, however, it is nearly always very well hidden. In appearance and construction it is exactly like that of the other Flower-peckers. The eggs number two or three and are of the normal grey-white tint. Thirty eggs average 14·4 × 10·5 mm.; maxima **15·1 × 11·1** mm.; minima **13·1 × 10·2** and 14·1 × **10·1** mm.

**Habits.** Those of the genus. Aitken says that it is very numerous about Bombay and Poona, where its favourite food is the berry of the common parasitic plant *Loranthus longiflorus*.

## (1309) Dicæum erythrorhynchum ceylonensis.

THE CEYLON FLOWER-PECKER.

*Dicæum erythrorhynchus ceylonensis* Babault, Mission Babault p. 293 (1920) (Ceylon).
*Dicæum erythrorhynchus.* Blanf. & Oates, ii, p. 381 (part).

**Vernacular names.** None recorded.

**Description.** Similar to Tickell's Flower-pecker but much darker above.

**Colours of soft parts** and **Measurements** as in Tickell's Flower-pecker, but the whole of the culmen is dark horny-brown.

**Distribution.** Ceylon only.

**Nidification.** Nothing recorded.

**Habits.** Those of the preceding bird. Wait says that it is found wherever the trees are infested with the parasitic *Loranthus* and that in the forest it feeds on the berries of creeping plants.

## Genus ACMONORHYNCHUS.

*Acmonorhynchus* Oates, Avifauna B. I., ii, p. 381 (1890).

Type, *Acmonorhynchus vincens* Sclater.

This genus was created by Oates for the reception of a remarkable Flower-pecker confined to Ceylon which had previously been placed either in *Prionochilus* or *Pachyglossa*. It differs from both these genera in having only nine primaries. From *Dicæum* it may be recognized by its very large short, thick bill, whilst from *Piprisoma* it differs in its rounded tail and the numerous hairs which cover the nostrils.

In *Acmonorhynchus* the sexes differ and the young bird resembles the *female*.

## (1310) Acmonorhynchus vincens

LEGGE'S FLOWER-PECKER.

*Prionochilus vincens* Sclater, P. Z. S., 1872, p. 729 (Ceylon).
*Acmonorhynchus vincens.* Blanf. & Oates, ii, p. 382.

**Vernacular names.** None recorded.

**Description.—Male.** Whole upper parts deep bluish-ashy with a faint gloss, each feather with an almost concealed dark blackish centre; the rump paler and stippled with grey; wing-feathers black, edged with deep ashy-blue, the primaries and outer secondaries with the basal halves of the inner webs white; tail black, all but the two central pairs of feathers broadly tipped with white; chin, throat and fore-neck white; remainder of lower plumage bright yellow, slightly washed with ashy-green on the posterior flanks; axillaries and under wing-coverts white.

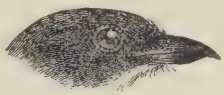


Fig. 81.—Head of *A. vincens.*

**Colours of soft parts.** Iris brownish-red; bill black, leaden at the base; legs and feet blackish.

**Measurements.** Wing: ♂ 58 to 61 mm.; ♀ 56 to 57 mm.; tail 25 to 27 mm.; tarsus about 13 mm.; culmen about 9 to 10 mm.

**Female.** The black in the male is replaced by dull greenish-brown and the colours of the underparts are duller; the flanks are more strongly washed with greenish.

**Distribution.** Ceylon only.

**Nidification** unknown.

**Habits.** Wait says that this little Flower-pecker is mainly confined to the forest of the wet low country zone but that it has been found up to 3,000 feet in the Central Province. It is a rare little bird and but little has been recorded about it. It is said to live in dense forest or in its immediate vicinity, associating in small flocks and hunting among creepers on tree-trunks for berries.

### Genus PIPRISOMA.

*Piprisoma* Blyth, J. A. S. B., xiii, p. 394 (1844).

Type, *Piprisoma squalidum* Burton.

The genus *Piprisoma* is very close to *Prionochilus*, from which it differs in having nine instead of ten primaries. In this genus the bill is similar to that of *Acmonorhynchus* but shorter, and viewed from above it is nearly an equilateral triangle with the sides sinuated. The sexes are alike.

## Piprisoma squalidum.

*Key to Subspecies.*

A. Lower mandible swollen; upper plumage olive-brown ..... *P. s. squalidum*, p. 435.
B. Lower mandible slender; upper plumage olive-green ..... *P. s. modestum*, p. 436.

### (1311) Piprisoma squalidum squalidum.

THE THICK-BILLED FLOWER-PECKER.

*Pipra squalida* Burton, P. Z. S., 1836, p. 113 (Himalayas).
*Piprisoma squalidum.* Blanf. & Oates, ii, p. 382.

**Vernacular names.** *Chittu-jitta* (Tel.).

**Description.** Upper plumage ashy olive-brown; greener on the rump and upper tail-coverts; tail brown tipped with white, very narrowly on the central feathers, increasingly broadly on the lateral feathers; wing-feathers brown edged with greenish-brown; a faint moustachial streak brown; lores, cheeks, chin and throat white; remainder of lower plumage very pale dull ashy yellowish-white, faintly streaked with brownish.

**Colours of soft parts.** Iris light brick-red; bill pale plumbeous-horny; legs dusky-plumbeous.

**Measurements.** Wing 59 to 62 mm.; tail 29 to 32 mm. tarsus about 11 to 12 mm.; culmen about 6 to 7 mm.

**Distribution.** Practically the whole of India from the foot-hills of the Himalayas to Ceylon. East it occurs as far as Calcutta, Dacca and Mymensingh but not in Assam.

**Nidification.** The Thick-billed Flower-pecker breeds throughout the plains up to about 6,000 feet, rarely up to 7,000 feet, from February to April in the plains and from April to June in the hills. The nest is a very remarkable one which can be mistaken for no other nest of any Indian bird. In shape it is a little bag, nearly as broad at the top as at the bottom, with an entrance close to the top about an inch in diameter. Roughly the nests measure about three inches long by about two broad and do not vary much in size. They are built of the down taken from young shoots and buds of plants such as *Butea frondosa*, the Indian *Loranthi* and the stems of bracken and ferns. These scraps of down are mixed with spiders' webs until they are of the consistency of felt so that the whole nest has the appearance of red-brown felt, rather thin near the top and over half an inch thick near the bottom. There is no lining but outside decorations in the shape of wee bits of bark, fibres, chips of leaves and grass, caterpillar excretæ etc. are often added, sometimes only one or two, sometimes a great many. So well is the nest made and so toughly are the materials woven that years after it is made it can be rolled up, stood upon and then, with a puff of breath through the entrance, restored to its

original shape and elasticity. Hume says that rarely a different type of nest, more like that of the birds of the genus *Dicæum*, is built but such a nest must be very rare and I have never seen one. The nests are attached to bushes and trees at any height between five and twenty-five feet, the site selected being generally in the open, often in gardens and fruit orchards, rarely in forests.

The eggs number two or three, occasionally four. The ground-colour varies from a pinky white to a deep salmon-colour and the markings consist primarily of bright red-brown small blotches and freckles with secondary marks of lavender and pale purple-brown. Most eggs have the markings numerous everywhere, but nowhere thick enough to hide the ground and nearly always more numerous at the larger end. In a few eggs the spots are sparse except at the larger end, where they form a deep well-defined ring. Seventy eggs average 15·9 × 11·5 mm.: maxima **17·1** × 12·0 and 16·6 × **12·1** mm.; minima **14·8** × **11·0** mm.

The texture of the eggs is soft and fragile with little or no gloss.

**Habits.** The Thick-billed Flower-pecker is found all over the plains and up to about 6,000 feet in the hills and is resident wherever found. It frequents cultivated and open country as long as it is well wooded and is often found in gardens. In forest it is only casual except on the very edges though it is fond of large mango orchards and similar small clumps of trees. In its attitudes, food, flight etc. it differs but little from the other Flower-peckers, haunting lofty trees and feeding on nectar and seeds, berries and insects. Its call is said to be like that of *Dicæum m. concolor* but louder and shriller.

## (1312) Piprisoma squalidum modestum.

HUME'S FLOWER-PECKER.

*Prionochilus modestus* Hume, Str. Feath., iii, p. 298 (1875) (South Tenasserim).
*Piprisoma modestum.* Blanf. & Oates, ii, p. 383.

**Vernacular names.** *Dao-kashiba-barto-lai* (Cachari).

**Description.** Similar to the preceding bird but olive-green above instead of olive-brown; the lower surface is more yellow, less buff and is more strongly streaked with brown on the throat. The lower mandible is comparatively slender with the line of the lower edge almost straight instead of angular and swollen.

**Colours of soft parts.** The same as in the Thick-billed Flower-pecker.

**Measurements.** Wing 56 to 62 mm.; tail 29 to 32 mm.; tarsus about 11 to 12 mm.; culmen about 7 to 8 mm.

**Distribution.** Assam, North and South of the Brahmaputra, throughout the hilly country of Burma to Tenasserim, Shan States and Siam.

**Nidification.** Exactly the same as that of the preceding subspecies. In North Cachar I found this bird paired and evidently breeding in March and April and two nests found in the latter month had nearly full-fledged young. Later I found nests with eggs in May and June and probably two broods are often hatched. The nests and eggs cannot be distinguished from the normal type made and laid by the Thick-billed Flower-pecker, but most of my nests were taken from trees about ten feet up or less. One built on a wild mango was about thirty feet from the ground. The few eggs I have seen varied between 15·0 × 10·8 mm. and 15·9 × 12·0 mm. They are handsome eggs, the red-brown blotches showing up well on the bright pink ground.

**Habits.** This is more of a forest bird than the preceding one but it prefers light forest or openings such as jungle tracks and roads, riverside banks and open glades. It also frequents the secondary jungle growing in deserted rice-fields. Except for its haunting forests its habits do not differ from those of the typical race.

## Genus **PRIONOCHILUS.**

*Prionochilus* Strickl., P. Z. S., 1841, p. 29.

Type, *Prionochilus ignicapillus* Eyton.

In this genus the bill is much the same shape as that of *Acmonorhynchus*, but the sides are slightly concave when viewed from above and the nasal bristles are entirely absent. The wing has ten primaries of which the first is more than one-third the length of the second; the tail is square.

In *Prionochilus* the males are very brightly coloured and the sexes are dissimilar.

*Key to Species.*

A. Upper plumage blue..... *P. ignicapillus*, ♂, p. 437.
B. Upper plumage green.
  *a*. Lower plumage unstreaked ..... *P. ignicapillus*, ♀, p. 438.
  *b*. Lower plumage streaked.
    *a'*. Crown-patch crimson ..... *P. maculatus*, ♂, p. 438.
    *b'*. Crown-patch orange-yellow ..... *P. maculatus*, ♀, p. 439.

## (1313) **Prionochilus ignicapillus.**

THE CRIMSON-BREASTED FLOWER-PECKER.

*Dicæum ignicapilla* Eyton, P. Z. S., 1839, p. 105 (Malaya).
*Prionochilus ignicapillus.* Blanf. & Oates, ii, p. 384.

**Vernacular names.** None recorded.

**Description.—Male.** Whole upper plumage, sides of head and neck, exposed parts of wing-coverts and innermost secondaries dull blue; a patch of crimson on the centre of the crown; tail

dark brown, suffused with blue on the central feathers and the edges of the lateral feathers; wing-feathers dark brown, the primaries and outer secondaries edged with pale green; a narrow black moustachial streak black with a white streak above it; point of chin white or very pale yellow; whole lower plumage bright dark yellow, a bold patch of crimson on the breast; the flanks washed with greenish; the vent and under tail-coverts paler and more greenish; axillaries and under wing-coverts white.

**Colours of soft parts.** Iris red-brown to dark brown; upper mandible black, the lower paler and plumbeous; legs and feet dark plumbeous.

**Measurements.** Total length about 100 mm.; wing 52 to 57 mm.; tail 25 to 27 mm.; tarsus 13 to 14 mm.; culmen about 9 mm.

**Female.** An orange patch on the crown, with this exception whole upper parts green; the concealed parts of wings and tail brown; moustachial streaks as in the male; lower parts dull ashy-green, albescent on the throat, yellow on the centre of the lower breast and abdomen.

**Young birds** are like the adult female but have no coronal patch.

**Distribution.** South Tenasserim, through the Malay Peninsula to Sumatra and Borneo; South-West Siam.

**Nidification.** The only nest I have seen of this bird was one taken by Major J. C. Moulton at Kuching, Borneo, on the 23rd of April. The nest measures almost 4 inches deep by $2\frac{3}{4}$ inches broad and may be described as half-way in appearance between that of *Leptocoma* and *Piprisoma*. It is not a felt-like substance like that of the latter nor an untidy bulky structure like that of the former. It is made of a sort of reddish vegetable down and lined with a well-matted mass of the same material. Outside it is decorated with all sorts of oddments but these are much more tidily attached than in any nest of *Leptocoma*. The single white egg it contained measured $13{\cdot}1 \times 10{\cdot}0$ mm.

**Habits.** Davison found this little Flower-pecker haunting lofty trees in pairs feeding on both insects and berries, but preferably the latter. The note is said to be one similar to the sharp note of the *Dicæums* and its actions and flight are also similar to those of the birds of that genus.

## (1314) Prionochilus maculatus.

THE YELLOW-THROATED FLOWER-PECKER.

*Pardalotus maculatus* Temm., Pl. Col., iii, pl. 600, fig. 3 (1836) (Borneo).
*Prionochilus maculatus.* Blanf. & Oates, ii, p. 385.

**Vernacular names.** None recorded.

**Description.** A patch on the crown fiery red; remaining upper

plumage and exposed parts of wings and tail green; closed parts of wings and tail brown; lores and a broad moustachial streak white; cheeks, sides of the head and a line below the moustachial streak dull green; point of chin white; throat and fore-neck yellow; rest of lower plumage bright yellow, heavily streaked with green on the breast and flanks and sides of abdomen.

**Colours of soft parts.** Iris dull red; bill, upper mandible and gonys black, remainder of the bill plumbeous in the males, smalt-blue in the females; legs and feet very dark plumbeous in the males, dirty smalt-blue in the females (*Hume & Davison*).

**Measurements.** Total length about 95 mm.; wing 51 to 55 mm.; tail 23 to 25 mm.; tarsus 14 to 15 mm.; culmen about 8 to 9 mm.

**Female.** Similar to the male but has the coronal patch yellow.

**Young birds** are like the female but have no coronal patch.

**Distribution.** Tenasserim and South Siam through the Malay Peninsula. Borneo.

**Nidification.** Nothing recorded.

**Habits.** Similar to those of the birds of the genus *Dicæum*.

## Genus **PACHYGLOSSA.**

*Pachyglossa* Hodgs., J. A. S. B., xii, p. 1009 (1844).

Type, *Pachyglossa melanoxantha* Hodgs.

The genus *Pachyglossa* is very close to *Prionochilus* but differs from it in its very long wing with a minute first primary and comparatively short secondaries; the lower edge of the mandible is gently curved and the nostrils have the operculum partly covered by nasal hairs.

The sexes are dissimilar.

## (1315) **Pachyglossa melanoxantha.**

THE YELLOW-BELLIED FLOWER-PECKER.

*Pachyglossa melanoxantha* Hodgs., J. A. S. B., xii, p. 1010 (1843) (Nepal); Blanf. & Oates, ii, p. 386.

**Vernacular names.** None recorded.

**Description.—Male.** Whole upper plumage, sides of neck and breast and wing-coverts velvety-black; wing-quills brownish-black, edged with velvety-black; two outer pairs of tail-feathers with a large white patch at top of the inner web, sometimes very small, or even absent, on the penultimate feathers; middle of chin and throat, breast, axillaries and under wing-coverts white; remainder of lower plumage bright yellow.

**Colours of soft parts.** Iris red; bill black; legs and feet dark plumbeous.

**Measurements.** Total length about 110 mm.; wing 72 to 76 mm.; tail 40 to 42 mm.; tarsus 14 to 15 mm.; culmen about 8 to 9 mm.

**Female.** Upper parts olive-brown; the tail marked as in the male but less boldly; sides of the head, neck and breast greyish-olive; chin, throat and centre of breast dull white; remaining underparts pale yellow, washed with olive on the flanks and vent; axillaries and under wing-coverts white.

**Young males** are like the female but with brighter underparts and darker wings and tail.

**Distribution.** Sikkim and Nepal to Eastern Assam and the higher hill-ranges South of the Brahmaputra.

**Nidification** unknown.

**Habits.** Much the same as those of the two preceding genera.

## Suborder **ANISOMYODI.**

The families contained in this Suborder are distinguished from those contained in the *Diacromyodi* principally by having the syringeal muscles inserted either in the middle of, or on to the dorsal or ventral ends of, the bronchial semi-rings as shown in the woodcuts on p. 11, Vol. i of this work. The *Diacromyodi*, on the other hand, have them inserted into both ends of the semi-rings.

In treating the birds of the world this Suborder may be divided as proposed by Pycraft into three groups, *Oligomyodi*, *Clamatores* and *Tracheophonæ*, the last of which has no representative genus in India. The *Oligomyodi* and *Clamatores* in India are each represented by one family only, the Pittas, *Pittidæ*, in the former and the Broadbills, *Eurylaimidæ*, in the latter. For the purpose of this work, therefore, we may eliminate the groups and consider the two families only.

*Key to Families.*

A. The intrinsic muscles of the syrinx attached to two pairs of the bronchial semi-rings. Tarsi very long and strong; tail short.... **Pittidæ**, p. 441.
B. The intrinsic muscles attached to one pair only of the bronchial semi-rings. Tarsi not long; tail normal or lengthened .... **Eurylaimidæ**, p. 459.

## Family PITTIDÆ.

The intrinsic muscles of the syrinx are fixed to about the middle of the bronchial semi-rings and are always limited to two pairs; the wing has ten primaries, the first being very long and reaching almost to the tip of the wing; the tarsus is exceptionally long and strong, the anterior surface being entire and smooth; the tail, of twelve feathers, is very short; the feathers of the crown very full and erectile, forming a short thick crest, not apparent unless the bird is excited. In this family the *flexor longus hallucis* and the *flexor profundus digitorum* are not united with a vinculum as they are in the next family, the *Eurylaimidæ*.

*Key to Genera.*

A. Feathers at the side of the nape long and pointed, forming conspicuous aigrettes .. Anthocincla, p. 442.
B. No aigrettes at the side of the nape ..... Pitta, p. 443.

## Genus ANTHOCINCLA.

*Anthocincla* Blyth, J. A. S. B., xxxi, p. 343 (1862).

Type, *Anthocincla phayrei* Blyth.

The characters of the genus are those of the family and it only differs from *Pitta* in having aigrettes and also a comparatively longer, rather more slender bill. It is represented within our limits by a single species. The sexes are very much alike.

## (1316) Anthocincla phayrei.

PHAYRE'S PITTA.

*Anthocincla phayrei* Blyth, J. A. S. B., xxxi, p. 343 (1862) (Toung-hoo).
*Anthocincla phayrii.* Blanf. & Oates, ii, p. 387.

**Vernacular names.** None recorded.

Fig. 82.—Head of *A. phayrei.*

**Description.—Male.** A black coronal band from the forehead and a second from the lores and through the eye meeting on, and covering the whole of the nape and sides of the neck; forehead and sides of the crown fulvous, each feather edged with black; feathers above the eye more white, changing to pure white on the longest feathers of the aigrettes, which are barred with black, and more fulvous on the concealed bases; upper plumage rufous-brown; wing-coverts broadly tipped with rufous-fulvous and with lunar black bars on each web; primaries and outer secondaries dark brown, edged with rufous and with a fulvous patch at the base; innermost secondaries like the back; ear-coverts black with rufous shafts; sides of the head fulvous, each feather very narrowly edged with blackish; the edges of the feathers at the sides of the throat black, forming two moustachial streaks; chin white, changing to fulvous on the lower throat and to deeper rufescent fulvous on the breast and abdomen, the breast and

anterior flanks more or less spotted with black; under tail-coverts dark pink.

**Colours of soft parts.** Iris dark brown; bill black; legs and feet dark fleshy. In the non-breeding season the bill is dark horny-brown rather than black.

**Measurements.** Total length about 220 mm.; wing 101 to 107 mm.; tail 55 to 58 mm.; tarsus 30 to 31 mm.; culmen 25 to 28 mm.

**Female.** Has the black on the crown, nape, neck, lores and sides of the head replaced by rufous-brown; the rufous of the lower parts is duller and paler and much more boldly and freely spotted with black; the under tail-coverts are generally a duller pink. The bill of the female is a dark horny-brown, paler on the lower mandible.

**Distribution.** Burma East of the Sittoung River, Shan States, Siam and Tenasserim.

**Nidification.** Bingham found a nest of this species on the 27th April at about 5,000 feet in the Karen Hills. The nest is described as oven-shaped, made of leaves, roots and grasses and lined with fine black roots. The entrance was on one side, low down, with a little raised platform of twigs leading up to it. It was built on a bank covered with evergreen bushes inside a deep forest. The nest contained four eggs, broad ellipses in shape, china-white with a few minute spots and specks of purple-black at the larger end. The shell, like that of all Pittas' eggs, is very hard with a high gloss. The four eggs measure between 27·9 × 23·3 and 27·4 × 21·6 mm.

**Habits.** Very little is known about this rare Pitta but it is apparently a frequenter of both thin and dense forest between some 1,500 and 6,000 feet. It keeps entirely to the ground and Davison never saw it on trees at any time.

## Genus **PITTA.**

*Pitta* Vieill., Analyse, p. 42 (1816).

Type, *Pitta brachyura* Linn.

This genus differs from *Anthocincla* only in wanting aigrettes and in having a rather shorter bill.

### *Key to Species.*

A. Lower plumage plain fulvous.
  *a*. Tail brown tinged with green.
    *a'*. Nape and hind neck blue ..... *P. nepalensis*, p. 444.
    *b'*. Nape and hind neck fulvous ..... *P. oatesi*, p. 446.
  *b*. Tail blue ..... *P. cærulea*, p. 447.
B. Lower plumage cross-barred.
  *c*. Nape red, crown with a black coronal band ..... *P. cyanea*, p. 448.

*d*. Nape ferruginous like the crown, no coronal band ..... *P. gurneyi*, ♀, p. 458.
C. Lower plumage marked with brilliant crimson.
*e*. Breast and abdomen fulvous or buff.
*c'*. Under wing-coverts black.
*a''*. Culmen over 28 mm. ..... *P. moluccensis*, p. 450.
*b''*. Culmen under 22 mm. ..... *P. megarhyncha*, p. 452.
*d'*. Under wing-coverts with a large patch of white ..... *P. brachyura*, p. 453.
*f*. Breast and abdomen all crimson ..... *P. coccinea*, p. 454.
*g*. Breast and abdomen green ..... *P. cucullata*, p. 455.
D. Lower plumage black ..... *P. gurneyi*, ♂, p. 458.

## (1317) Pitta nepalensis.

THE BLUE-NAPED PITTA.

*Paludicola nepalensis* Hodgs., J. A. S. B., vi, p. 103 (1837) (Nepal).
*Pitta nepalensis*. Blanf. & Oates, ii, p. 389.

**Vernacular names.** *Dao-bui yegashi* (Cachari).

Fig. 83.—Head of *P. nepalensis*.

**Description.—Male.** Forehead, anterior crown, supercilium and feathers round the eye fulvous; posterior crown, nape and hind-neck bright blue shading into olive-brown, washed with grass-green, on the back, scapulars, rump and tail; wing-coverts like the back but less green and margined with fulvous; quills brown edged with fulvous, innermost secondaries all fulvous with a faint green sheen; sides of the head, chin and throat rufous-fulvous, often whitish on the centre of the chin and throat; a concealed patch of black on each side of the neck; the remaining plumage rufous-fulvous, the feathers of the fore-neck with black bases which sometimes show through.

The depth of colour of the lower plumage varies considerably and a few individuals have a beautiful fulvous-pink flush on the throat and fore-neck.

Many Assam and Manipur birds have black centres to the scapulars, feathers of the back, rump and the upper tail-coverts. On the other hand many are quite indistinguishable from birds of Nepal and Sikkim.

**Colours of soft parts.** Iris light to dark brown; edges of eyelids dull flesh-colour; bill horny, gape purple, mouth dull flesh-colour; legs fleshy-pink to dull reddish-slate; soles paler fleshy-pink, claws almost white.

**Measurements.** Wing 116 to 129 mm.; tail 61 to 68 mm.; tarsus 51 to 59 mm.; culmen 22 to 26 mm.

**Female.** Similar to the male but green on the hind-neck instead of blue and the crown all rufous-fulvous; below like the male, the colour of the throat varies individually rather than sexually.

**The Nestling** is dark brown above, each feather with a large central patch of pale fulvous and blackish edges; below the whole plumage is very pale fulvous-pink, the feathers of the chin, throat and fore-neck with obsolete dark edges and the remainder of the feathers with black bases and narrow black borders, the former showing everywhere but most boldly on the breast and flanks.

**Distribution.** The lower Himalayas from East Nepal to the extreme East and South of Assam; Manipur, Hill Tippera and Chittagong Hill Tracts in Eastern Bengal; Lushai and Chin Hills to North Arakan.

**Nidification.** The Blue-naped Pitta breeds from the foot-hills, seldom under 1,500 feet, up to some 6,000 all along the outer Himalayas but it is most common between 2,000 and 3,500 feet. The majority of eggs are laid in May and June but at the lower levels many nests are built in early April and I have taken fresh eggs up to the end of August, these probably being second broods. The nest is of two types. Ordinarily it is built on the ground in bamboo, scrub or thin secondary growth, more rarely in forest. In these cases the nest is composed almost entirely of bamboo-leaves, mixed with grass and a few roots and lined with the latter; in shape it is like a large Rugby football, the entrance close to the ground at one end and, often, it is more or less buried in fallen leaves and other debris. At other times it is placed in a clump of bamboos, a small sapling or on a platform of branches and rubbish on bushes. When thus placed it is built of a greater variety of material, and twigs, roots and fern-fronds etc. are all used to strengthen and keep together the bamboo-leaves and grass, though, wherever it may be, it is always so loosely put together that it falls to pieces when handled. The eggs number three to seven, generally four or five. The ground is a hard glossy china-white and in most eggs the marks consist of sparse spots and specks of deep purple-black with still fewer secondary marks of pale lavender. Some eggs have a few hair-lines and straggling blotches of the same colour, whilst a few have more numerous pale reddish blotches all over the surface. One hundred

eggs average 29·5 × 23·4 mm.: maxima **32·6** × 24·1 and 31·2 × **25·6** mm.; minima **26·1** × 23·3 and 28·0 × **21·8** mm. As will be seen from the measurements the eggs are very broad ovals and the smaller ends hardly differ from the larger.

**Habits.** This handsome Pitta is resident throughout its range and may be found in almost any kind of forest or jungle but undoubtedly prefers either bamboo-jungle with little or no undergrowth or mixed bamboo- and scrub-jungle. It is especially fond of the dense secondary growth mixed with bamboos which at once springs up in hill-cultivation when deserted. Here it may be heard quietly scratching about among the dry leaves, turning them over and over as it hunts for ants, small coleoptera and insects of all kinds. In addition to these it will eat almost any small moving object, worms, lizards and even young field-mice. It flies quite well and at some speed, but never for any distance, preferring progression on its feet by immense bounds, several feet long, repeated with extraordinary speed. When thus moving it looks like a mammal and many writers have likened it to a rat. The only note I have heard is a magnificent double whistle, uttered both on the ground and when on a tree and most often to be heard ringing out in the early mornings and late evenings. When feeding in pairs, as they generally do, a very soft chuckle is made from time to time by either sex.

## (1318) Pitta oatesi.

THE FULVOUS PITTA.

*Hydrornis oatesi* Hume, Str. Feath., i, p. 477 (1873) (Tenasserim)
*Pitta oatesi.* Blanf. & Oates, ii, p. 390.

**Vernacular names.** None recorded.

**Description.** Resembles *P. nepalensis* very closely but has no blue at all on the nape and hind-neck; the upper back is generally a rather more decided green and there is often a trace of blue on the rump; the pink tinge on the throat seems to be more constant.

**Colours of soft parts.** Iris hazel; bill dark horny-brown, the lower mandible, gape and edges of the upper mandible paler and tinged with salmon-pink; legs and feet fleshy or fleshy-pink. The young bird has the iris brown surrounded by a ring of grey.

**Measurements.** Wing 117 to 128 mm.; tail 62 to 66 mm.; tarsus 54 to 56 mm.; culmen 24 to 26 mm.

**The Young bird** is like that of the Blue-naped Pitta but is darker above with paler, almost white spots; below there is only a very slight pink tinge, the large spots being almost pure white.

**Distribution.** Eastern Burma and South Shan States; Tenasserim as far South as Perak in the Federated Malay States. It is comparatively rare, but is found occasionally West of the

Pegu Yomas in the extreme South of the Arakan Yomas and is common in the Pegu Yomas.

**Nidification.** I have received a nest from Perak with the parent birds which was found in January; other nests from near Amherst taken in April, from near Bassein taken in April and May and, finally, from near Tavoy taken in March. Both nests and eggs are quite indistinguishable from those of *Pitta nepalensis* but this species seems always to breed in dense evergreen forest. The forty-four eggs I have measured average 28·5 × 24·3 mm.: maxima 31·3 × 25·2 mm.; minima 25·9 × 24·0 mm. and 27·0 × 23·0 mm.

**Habits.** The Fulvous Pitta only differs in its habits from the Blue-naped Pitta in keeping more entirely to the deepest forest, where it frequents ravines and broken ground, feeding on insects, worms etc., turning over the dead leaves and rubbish in its quest for food. It has the same beautiful loud double whistle, or call, which can be heard an immense distance and which, like that of the Blue-naped Pitta, is often uttered on moonlight nights.

## (1319) Pitta cærulea cærulea.

THE GIANT PITTA.

*Myiothera cærulea* Raffles, Trans. Linn. Soc., xiii, p. 301 (1822) (Sumatra).
*Pitta cærulea.* Blanf. & Oates, ii, p. 390.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead, anterior crown, sides of the crown, lores, ear-coverts and sides of the head and neck pale grey-brown, each feather edged with black, boldly on the crown, obsoletely on the sides of the head; a broad coronal streak widening out on the nape and hind-neck, meeting another black line running back from the eye under the supercilium; back, wing-coverts, rump, upper tail-coverts and tail bright blue, brightest next the black neck; quills black, the primaries with a grey-blue patch at the end of the outer web, the secondaries increasingly and more bright blue until the innermost are all of this colour; chin fulvescent white changing to fulvous on the throat; fore-neck fulvous, the feathers edged narrowly with blackish; remainder of lower plumage fulvous, varying considerably in depth and richness; bases of the feathers of the extreme upper breast black, often showing through and forming a broken collar between the breast and fore-neck.

**Colours of soft parts.** Iris brown (*Herbert*), hazel-grey (*Davison*); bill black, inside of the mouth white; legs and feet pale grey, fleshy-grey or bluish-fleshy.

**Measurements.** Wing 138 to 155 mm.; tail 61 to 67 mm.; tarsus 54 to 59 mm.; culmen 32 to 35 mm.

**Female.** Edge of forehead, lores, sides of head and a broad

supercilium ashy-grey, the feathers very finely edged with black; crown, nape and hind-neck greyish-rufous, each feather boldly edged with black; a broad line, sometimes partly concealed, from the eye to the nape black; a broad collar of black below the hind-neck; back, scapulars and wing-coverts rich rufous, the greater coverts more grey and edged with paler blue-grey; primaries black with grey tips to the outer webs; secondaries dark brown with more grey on the outer webs and the inner with broad blue tips and terminal edges; rump and upper tail-coverts bright blue; tail darker blue; chin and throat almost white, remainder of lower plumage fulvous or brownish-fulvous; axillaries and wing-coverts mottled fulvous and brown.

**Colours of soft parts.** Bill blackish-brown, the lower mandible paler.

**Young birds** have the forehead to the upper back greyish-fulvous, each feather edged and centred dark brown; tail blue as in the adult; remainder of upper plumage and wings chocolate-brown; sides of the head fulvous, the feathers edged with black; chin and throat whitish; breast chocolate-brown, with broad fulvous terminal bars to many of the feathers; remainder of lower plumage brown paling to fulvous on the vent, posterior flanks and under tail-coverts.

**Distribution.** Tenasserim from Nwalabo Mountain throughout the Malay Peninsula to Sumatra. South-West Siam. It does not extend to Borneo where it is replaced by *P. c. hosei*, which has a very different female.

**Nidification** unknown.

**Habits.** There is little recorded about this beautiful Pitta beyond Davison's remarks: "They are extremely shy and not at all like the other Pittas. Directly they catch sight of you they rise, flying low but rapidly, and not alighting under 200 or 300 yards, when, of course, in the dense forests where alone they occur all trace of them is lost. They doubtless must call; but I have never heard their note to distinguish. My specimens had fed entirely on large black ants."

It is not yet known whether this bird is migratory, partially so, or quite sedentary, but probably it will be found to be a resident species, merely retiring into yet deeper forest at certain seasons of the year.

## (1320) **Pitta cyanea cyanea.**

THE BLUE PITTA.

*Pitta cyanea* Blyth, J. A. S. B., xii, p. 1008 (1843) (Arakan); Blanf. & Oates, ii, p. 391.

**Vernacular names.** *Daɔbui gatanglili* (Cachari).

**Description.—Male.** A broad coronal streak from the forehead to the nape black; remainder of forehead and crown ochre-grey

changing to red on the posterior crown and becoming pure scarlet on the nape; lores and a line through the eye black, broadening on the sides of the neck; whole upper plumage, tail and lesser median wing-coverts blue; greater coverts and winglet black; quills very dark brown, the primaries with a white patch at the base and with some of the inner ones washed with grey-blue near the tips of the outer webs, inner secondaries like the back, outer washed with blue on the outer webs; cheeks and ear-coverts fulvous-ochre; a moustachial streak black, widening and almost meeting on the throat; chin and throat white, the rather lanceolate feathers streaked with black; a white patch on the lower throat; remainder of lower plumage sheeny pale blue, washed with yellow on the breast and boldly marked with lunar bars or spots of black; centre of abdomen and vent almost unmarked; under tail-coverts nearly all white mottled with bluish-grey at the bases; under wing-coverts and axillaries brown and white.

**Colours of soft parts.** Iris dark reddish-brown; eyelids plumbeous; bill black, inside of the mouth dusky-fleshy; legs pinkish flesh-colour.

**Measurements.** Wing 106 to 116 mm.; tail 57 to 62 mm.; tarsus 43 to 45 mm.; culmen 22 to 24 mm.

**Female.** Upper plumage and wing-coverts brown washed with blue to a varying degree; rump more blue; longer upper tail-coverts and tail blue; lower plumage like that of the male but with the blue much less and the dull fulvous much more in extent; the markings also are narrower and less bold and the sheen is confined to the flanks; remainder of plumage as in the male but paler and duller.

**The Young bird** is like the female but retains the fulvous tips to the wing-coverts and often shows faint signs of barring above.

**Nestling.** Above brown, the head almost black, each feather with a fulvous centre, bright and broad on the crown and nape and reduced to dull narrow lines on the back; wing-coverts with terminal fulvous spots: rump and upper tail-coverts bluish; tail blue; chin and throat white, each feather narrowly edged with black; breast and underparts dark brown, each feather broadly streaked with fulvous; the centre of the abdomen and under tail-coverts almost white.

The nestlings and young birds have the bill fleshy-scarlet, the culmen and base mottled with horny-brown; the legs and feet are paler than in the adult.

**Distribution.** The Sub-Himalayas from Bhutan to Eastern Assam; Cachar, Tippera, Chittagong, Manipur, Lushai, Chin Hills and the hilly country of Burma from the Shan States to South Tenasserim; Siam and Annam.

The only specimen from Annam is a very dark, richly coloured bird with the breast washed with red instead of yellowish; if this

difference is constant it would suffice to differentiate it from the other forms.

**Nidification.** The Blue Pitta breeds in Assam, South Burma and South Siam in May and June, occasionally as late as July, being found in the South Assam hills certainly up to 5,000 feet at this season, though normally it is a plains' breeder and not a mountain bird. The nest is a large oval domed affair anything between 6 and 10 inches in length and a little less in breadth and height. Where bamboo-leaves are obtainable these form the bulk of the material used, but moss, bracken, grass and other dead leaves nearly always form part also and, when it is placed on the ground—as it often is—there is nearly always a bed of debris collected together for it to lie on. The lining is of roots and leaves and, however wet the outside may be, the inside is always warm and dry. It may be placed on the ground, on a stump or on a sapling and is often very conspicuous though so rough and untidy that nest-hunters of all kinds pass it by. The eggs, three to seven in number, generally four or five, are very spherical; the ground is a highly glossed china-white and the markings consist of fairly numerous specks, spots and short tangled lines of deep purple-black or lighter reddish-brown. These are much more numerous than on the eggs of the Blue-naped and Fulvous Pittas but are never numerous enough to obscure the ground. Fifty eggs average 27·3 × 20·9 mm.: maxima **28·2 × 22·1** mm.; minima **24·0** × 21·5 and 25·2 × **20·1** mm.

**Habits.** The Blue Pitta seems to be locally migratory but no one has as yet been able to work out its movements. In N. Cachar it is resident, though very rare, for I have myself seen it in almost every month of the year, nor does it move vertically with the seasons. Both Burmese and Siamese say that the bird is only known to them in the breeding-season and that it is most irregular in its movements, some years being very numerous whilst in others hardly a bird is seen. The birds keep closely to dense forest or bamboo- and scrub-jungle and are very shy and wary, scuttling away into cover on the slightest sign of danger. By preference they use their legs in escaping, progressing in huge leaps like all the members of this family, at the same time they can fly well when driven to do so. I think their principal diet is ants and termites but they will eat practically any kind of insect, larvæ, worms etc. Their note is a beautiful whistle, very like that of the Blue-naped Pitta but not nearly so powerful.

## (1321) **Pitta moluccensis.**

THE LESSER BLUE-WINGED PITTA.

*Turdus moluccensis* Müller, Natursyst. Suppl., p. 144 (1776) (Moluccas *in errore*, Tenasserim).
*Pitta cyanoptera.* Blanf. & Oates, ii, p. 392.

**Vernacular names.** *Nok-tao-rao* (all Pittas) (Siam).

**Description.** A coronal streak from the forehead to the nape black; lores, round the eye, cheeks, ear-coverts and sides of the neck black, meeting the coronal streak and forming a collar on the hind-neck; back, scapulars and inner secondaries dark grass-green; rump, upper tail-coverts and lesser wing-coverts brilliant ultramarine; tail black, tipped with dull blue; median and greater wing-coverts green, tipped and edged with blue; primaries white, with broad black bases and tips, the inner primaries nearly all white; secondaries black, the terminal portions of the outer webs green; chin and throat white, the former black at the point; remainder of lower plumage bright buff, the centre of the abdomen, vent and under tail-coverts bright scarlet-crimson.

**Colours of soft parts.** Iris dark brown; eyelid and ocular region slaty-blue; bill horny-brown to almost black, the culmen and tip quite black; legs and feet and inside of mouth fleshy-pink.

**Measurements.** Wing 118 to 127 mm.; tail 42 to 45 mm.; tarsus 20 to 24 mm.; culmen 24 to 26 mm.

**Young birds** have the coronal streak broader and ill-defined and the feathers of the crown edged with black; wing-coverts dull blue and the lower plumage less bright than in the adult.

Many adult birds of both sexes have black streaks on the feathers of the upper plumage, sometimes on the back, sometimes on the lower back and rump. These streaks seem to be a characteristic of all the Pittas and have nothing to do with age or sex.

**Distribution.** South Arakan to South Tenasserim, Central Burma from the Karen Hills to the extreme South; Siam; the Malay Peninsula, Sumatra and Borneo.

Birds from Sumatra and Borneo have very broad nuchal collars but there is not sufficient material available to show if this is individual or geographical. Two specimens from Penang have the collar rather broad, but in the fifty odd specimens from the North there are none which show any approach in breadth of collar to the island birds.

**Nidification.** The Lesser Blue-winged Pitta breeds from April to July throughout its recorded range, making a nest practically indistinguishable from that of the preceding bird although it is placed nearly always on the ground and not in such heavy forest. Mackenzie, who has taken or seen numerous nests, one with fresh eggs as late as the 1st August, says that they are most common in fairly dense forest of Teak where there is sufficient, though not very heavy, undergrowth. As a rule the nests are scattered very far apart, but in a few favoured places they are comparatively numerous. They are nearly always built on the banks of tiny forest streams with the opening facing the stream and a favourite position is wedged in among the roots of

a tree. The number of eggs varies from three to seven and in colour they are typical Pitta's but on the whole are the most richly and profusely marked of all. In some eggs spots and hieroglyphics are mixed together but in others one or the other type preponderates. Sixty-six eggs average 26·3 × 21·3 mm.: maxima 28·9 × 22·1 and 27·1 × 22·6 mm.; minima 24·0 × 20·7 and 25·2 × 20·0 mm.

**Habits.** Very similar in all respects to *P. cyanea* but it does not keep so exclusively to dense forest. Occasionally it comes close to villages and Mackenzie found a nest within two hundred yards of a village. Oates says that they are only Summer visitors to Burma but that once they arrive "the jungle seems alive with these birds and their loud melodious note may be heard in every well-wooded locality."

## (1322) Pitta megarhyncha.

THE LARGE-BILLED BLUE-WINGED PITTA.

*Pitta megarhyncha* Schleg. Vog. Ned. Ind., Pitta, p. 32 (1863) (Isle de Banka); Blanf. & Oates, ii, p. 393.

**Vernacular names.** None recorded.

**Description.** Very similar to the Lesser Blue-winged Pitta but with a larger bill; the crown is of a darker brown, with little or no ochre tinge and the coronal streak is absent or obsolete; the back is a much darker duller green.

**Colours of soft parts.** Iris very dark brown; bill black; legs and feet dark fleshy, the claws more white.

**Measurements.** Wing 114 to 120 mm.; tail 40 to 43 mm.; tarsus 39 to 41 mm.; culmen 29 to 34 mm.

**The Young bird** has the feathers of the head margined with black; the back is a dull brownish-green and the lower parts are duller and browner with little or no indication of the crimson abdomen and vent.

**Distribution.** Tenasserim South to the Malay Peninsula and the Island of Banka.

**Nidification.** A nest of this species found by Darling in an island off Tenasserim is said to have been of the usual type, as, also, was an egg taken from the oviduct of the female.

**Habits.** Those of the genus. To what extent it is migratory or sedentary still remains to be proved. It is a rare bird and very little has been recorded about it.

## (1323) Pitta brachyura.

THE INDIAN PITTA.

*Corvus brachyurus* Linn., Syst. Nat., 12th ed. i, p. 158 (1766) (Moluccas *in errore*, Ceylon).
*Pitta brachyura.* Blanf. & Oates, ii, p. 393.

**Vernacular names.** *Nourang* (Hind.); *Shumcha* (Beng.); *Poona-inki* (Tel.); *Avitchia*, *Avitta* (Cing.); *Dao-bui-yegashi* (Cachari).

**Description.** A broad coronal streak from the forehead to the nape black, remainder of crown fulvous-brown, paler and almost white at the sides forming a supercilium from the bill to the nape where the feathers are prolonged almost into aigrettes, the inner webs fulvous, the outer pale blue; feathers under the eye white or fulvous-white; lores, sides of the head, ear-coverts and sides of the neck black meeting the coronal streak and forming a collar on the hind-neck; back, scapulars, rump, median wing-coverts and inner secondaries green; lower rump, upper tail-coverts and lesser wing-coverts bright pale blue; tail black, broadly tipped with green; primary coverts black; primaries black, the two first with broad patches of white on the inner webs, the others with white patches on both webs and all tipped with pale greyish-brown; chin, throat and a line behind the black neck, white; abdomen, vent and under tail-coverts crimson-pink; remainder of lower plumage fulvous; under wing-coverts and axillaries black.

Many individuals have the feathers of the upper parts broadly streaked with black; in some these streaks are confined to the back, in others they extend to the rump, upper tail-coverts and inner secondaries.

**Colours of soft parts.** Iris dark brown; bill dark brown or black, paler and more reddish at the base and on the tip and culmen; legs and feet pale purplish-fleshy or dingy pale brown (possibly young birds).

**Measurements.** Wing 101 to 108 mm.; tail 37 to 40 mm.; tarsus 35 to 38 mm.; culmen 20 to 22 mm.

**Young birds** have the crown darker and the feathers edged with black; the back is very dark and much duller and browner; the lower plumage is duller and browner and there is but little pink.

**Distribution.** Simla to Ceylon; Rajputana, Bombay, to Assam, Chittagong and Manipur.

**Nidification.** The Indian Pitta breeds over the whole of its range but in the extreme South it is rare, whilst it is most common in many parts of Central India and again in South Assam and parts of Bihar. Its nest is the usual huge football, often as much as a foot long by about nine inches high, made of

leaves, grass, twigs and moss and lined with grass and bamboo-leaves or, in the Central Province, with tamarisk twigs and grass-roots. The nests are sometimes placed on the ground, sometimes on bushes but more often in among the first and larger forked boughs of small trees and saplings. Like so many other Pittas' nests they owe much of their security from marauders to their very conspicuousness which renders them so unlike most nests. They lay four to six eggs with the usual glossy china-white ground and are very spherical in shape. The marks consist of spots and specks varying from purple-brown to almost black with secondary markings of lavender and dull purple, whilst in a few eggs the spots are more brown or light reddish-brown. In the great majority of eggs the marks are fairly numerous at the larger end and sparse elsewhere while the twisted lines so common in most Pittas' eggs are very rarely present. Fifty eggs average 24·7×21·2 mm.: maxima 28·2×21·1 and 27·1×22·4 mm.; minima 23·3×21·0 and 24·9×20·0 mm. The principal breeding months are April to June.

**Habits.** The Indian Pitta is resident throughout India though it may move locally and is probably only a Summer breeding visitor to the hills above 2,000 feet. It is not a bird of the deeper forests, seeming to prefer bamboo- and scrub-jungle or deciduous forest such as Sal and Oak. It feeds, like other Pittas, entirely on the ground, but roosts on trees and is said to utter its whistling calls from trees or other elevated perches.

## Pitta granatina.

*Pitta granatina* Temm., Pl. Col., pl. 506 (1830).

Type-locality: Borneo.

The typical form differs from that found in Tenasserim and the Malay Peninsula, *Pitta g. coccinea*, in having a narrow black frontal band instead of a broad one.

## (1324) Pitta granatina coccinea.

THE MALAYAN SCARLET PITTA.

*Pitta coccinea* Eyton, P.Z.S., 1839, p. 104 (Malaya); Blanf. & Oates, ii, p. 394.

**Vernacular names.** None recorded.

**Description.** Forehead, to a breadth of about 4 to 7 mm., lores, supercilium and sides of the head black; the posterior supercilium, from the ear-coverts to the neck, has the feathers lanceolate and brilliant steel-blue with black bases; crown, nape and hind-neck rich scarlet-crimson; back, scapulars, lesser wing-coverts, upper tail-coverts, rump and tail purple, tinged with blue, brightest on the upper back and longest tail-coverts, but varying greatly in different lights; lesser wing-coverts black; median

and greater coverts black with broad edges and tips of glistening smalt-blue; quills black, edged with deep blue, the inner secondaries all of this colour; chin rufous-brown; throat and upper breast dark brown, a few feathers tipped with purple or crimson; lower breast blackish, overlaid with a purple sheen and often with some feathers tipped with crimson; axillaries and under wing-coverts black; remainder of lower plumage deep crimson, except the thighs which are brown.

**Colours of soft parts.** Iris deep brown; bill black; legs and feet clear plumbeous-blue.

**Measurements.** Wing 86 to 94 mm.; tail 35 to 38 mm.; tarsus 35 to 38 mm.; culmen 18 to 20 mm.

**The Nestling** is all brown, the crown rufescent and the lores, supercilium and sides of the head blackish; the underparts are like the crown, paling on the abdomen, vent and under tail-coverts to pinkish-brown; the visible portions of the wings and tail are suffused with dull, dark blue.

**Young birds** are intermediate in colour between the nestling and adult and assume the latter plumage very gradually.

**Distribution.** Tenasserim to the extreme South of the Malay Peninsula.

**Nidification** unknown.

**Habits.** Practically nothing on record but so far as is known similar to those of other Pittas.

## Pitta cucullata.

*Key to Subspecies.*

A. Brighter and paler above and below ..... *P. c. cucullata*, p. 455.
B. Darker both above and below ..... *P. c. abbotti*, p. 457.

In the immense series of this Pitta in the British Museum Collection there are unfortunately no specimens from the Nicobars and therefore it is impossible to confirm or refute Dr. Richmond's diagnosis of his new subspecies. For the present therefore I retain it, especially as Dr. Richmond had a series of seven birds for examination all of which appear to have been consistent both in colour and size.

### (1325) Pitta cucullata cucullata.

THE GREEN-BREASTED PITTA.

*Pitta cucullata* Hartl., Rev. Zool., 1843, p. 65 (Malacca); Blanf. & Oates, ii, p. 395.

**Vernacular names.** *Phattim-pho* (Lepch.).

**Description.** Forehead to nape rich rufous-brown; a narrow line over the eye and rest of head, chin, throat, sides of neck

and a broad collar on the hind-neck black; back, scapulars and rump rich dark grass-green; upper tail-coverts glistening pale ultramarine; tail black tipped with dull blue; lesser wing-coverts ultramarine; median and greater coverts grass-green, the latter darker and bluish; primaries white, with black bases and tips; outer secondaries black, with blue-green margins to the terminal halves of the outer webs; the green increasing in extent and becoming brighter until the innermost are all green like the back; breast, flanks and edges of abdomen bright pale green washed with ultramarine, in many specimens the blue wash being very strong; centre of abdomen, vent and under tail-coverts bright crimson; thighs brownish-green; axillaries and under wing-coverts black.

**Colours of soft parts.** Iris hazel-brown or "coffee-brown"; eyelids plumbeous; bill black, inside of mouth fleshy; legs and feet fleshy-pink, pale fleshy-lavender or fleshy-horn.

**Measurements.** Total length about 190 to 200 mm.; wing 109 to 119 mm.; tail 39 to 42 mm.; tarsus 38 to 42 mm.; culmen 20 to 22 mm.

**Young birds** are like the adult but have the crimson of the abdomen and vent pale.

**Nestlings** have the crown a rather duller brown; the black of the chin, sides of head and narrow collar is duller; the upper plumage is brown washed with green; the upper tail-coverts are dull, pale greenish-blue; tail dark brown washed with green; lesser wing-coverts dull green with narrow brown rims; median coverts white, with greenish-brown concealed bases and very narrow brown margins; greater coverts dull green; quills like the adult but duller; throat brownish-white; remaining lower parts dull brown, paling to pink on the abdomen, vent and under tail-coverts.

**Colours of soft parts.** Iris glaucous blue, changing to dull brown; bill black, the tip and gape dull orange; legs and feet fleshy or lavender-white.

**Distribution.** The Himalayas and sub-Himalayan Terai from Nepal to the extreme South and East of Assam; Gonda in the United Provinces, Eastern Bengal in Tippera, Mymensingh, Chittagong and (once) Noakhali; Chin Hills and Shan States to the extreme South of Burma, Malay States and Siam.

**Nidification.** The Green-breasted Pitta breeds from the end of April to July in Oudh, Bihar, Eastern Bengal and Assam and the Terai up to 5,000 or 6,000 feet. The nest is like that of all Pittas; when bamboo leaves are available, these form the favourite material but are mixed with roots, leaves and grass and sometimes these alone with twigs are used. As they are built on the ground and among fallen debris, the latter is often formed into a little raised passage to the entrance of the nest. The eggs number three to six and differ from those of the Indian

Pitta in being much more profusely marked and often in having a few additional lines and scriggles of purple-black; in most eggs also the spots are much less bold and definite. Fifty eggs average 27·1 × 21·0 mm.; maxima **28·0** × 22·0 and 25·8 × **22·5** mm.: minima **23 0** × 22·0 and 25·6 × **19·6** mm.

**Habits.** This Pitta is more a bird of the lower hills than the plains though it is resident over a considerable extent of the latter along the sub-Terai It is found in evergreen-forest, bush- and bamboo-jungle and sometimes in grass lands with patches of tree-forest here and there. Even where common it is not an easy bird to find and watch, for it is so shy and so quick in getting away when disturbed that usually all one sees is *something*, bird or mammal, bounding away into cover. On the rare occasions I have been able to watch it, it was busy feeding on termites; these it caught with great dexterity, leaping up into the air after them or pursuing them with remorseless energy on the ground. Those which crept under leaves or moss were promptly exposed by a couple of lusty kicks and seized with the bill. It breeds up to 5,000 feet and possibly 1,000 feet higher and the birds are very close sitters, seldom quitting their nests until almost trodden on. It is certainly resident wherever found though it may move about locally under stress of food conditions.

## (1326) **Pitta cucullata abbotti.**

THE NICOBAR GREEN-BREASTED PITTA.

*Pitta abbotti* Richmond, Proc. Nat. Mus. U. S., xxv, p. 298 (1902) (Nicobars).

**Vernacular names.** None recorded.

**Description.** Like *P. c. cucullata* "but darker above and below, lighter blue on upper tail- and wing-coverts; a dark median line on the crown; white patch on primaries much smaller and confined to six feathers instead of seven" (*Richmond*).

**Colours of soft parts.** "Iris dark brown; bill black, gape pale orange; feet pale brownish-fleshy" (*Richmond*).

**Measurements.** Length 184 mm.; wing 103 to 110 mm.; tail 39 mm.; tarsus 39·5 mm.; culmen 22 mm., bill from gape 27 mm. (*Richmond*).

**Distribution.** Great and Little Nicobars.

**Nidification** and **Habits.** Nothing recorded.

## (1327) **Pitta gurneyi.**

GURNEY'S PITTA.

*Pitta gurneyi* Hume, Str. Feath., iii, p. 296, pl. 3 (1875) (South Tenasserim); Blanf. & Oates, ii, p. 395.

**Vernacular names.** *Nok-tao-rao* (Siam).

**Description.—Male.** Forehead, anterior crown, a broad supercilium, lores, sides of the head and neck and a narrow supercilium black; hinder crown and nape glistening blue, the feathers long and forming a crest; upper plumage, wing-coverts and innermost secondaries rufous-brown; wing-quills brown, the inner primaries and outer secondaries edged pale rufous; tail bright pale greenish-blue, the concealed portions blackish; a few of the longest upper tail-coverts blue; point of chin black; chin and throat white, shading into bright yellow on the upper breast and hinder sides of neck; breast and abdomen black; under tail-coverts black with broad blue tips; flanks barred black and bright yellow; under wing-coverts and axillaries black, a few feathers in the centre of the former white.

**Colours of soft parts.** Iris brown; bill black; legs and feet fleshy-white to fleshy Indian-red.

**Measurements.** Wing 97 to 102 mm.; tail 46 to 54 mm.; tarsus 40 to 42 mm.; culmen 20 to 22 mm.

**Female.** Forehead, crown and nape pale orange-ferruginous; upper plumage like that of the male but duller rufous-brown; sides of the head and neck black; chin, throat and behind the black of the neck white, or fulvous-white, the feathers next the black with obsolete black edges; breast and flanks closely barred yellow and black, more fulvous on the abdomen, where the bars are very faint and narrow; under tail-coverts black, edged with yellow; axillaries and under wing-coverts mixed white and brown or blackish; a little fulvous on the outer axillaries.

**Young birds** have the head and neck rufous-brown with black edges and, probably, the whole of the lower parts, except the white chin and throat, fulvous-brown with black edges.

**Distribution.** Peninsular Siam and Burma to Malacca.

**Nidification.** Herbert took a nest with four eggs of this Pitta at Klong Wahip, near Tung Song in Peninsular Siam on the 9th of October, shooting the female, from which he extracted a fifth egg, not quite ready to be laid. The nest was of the usual type, made entirely of bamboo-leaves and placed at the foot of a bamboo clump. The eggs can be matched with many eggs of *Pitta cucullata* and measure from 25·3 × 22·0 mm. to 27·0 × 22·4 mm.

**Habits.** Apparently a resident form as it has been met with by various collectors from February to July, by Oates still earlier in the year and by Herbert with fresh eggs in October. It is a bird of evergreen-forests and but little is known about it.

Fig. 84. *Psarisomus dalhousiæ* and nest (from Hodgson's drawing).

## Family EURYLAIMIDÆ.

The family *Eurylaimidæ* differs in two important anatomical characters from the *Pittidæ*. It differs from this latter family as from all other Indian families of the *Passeres* in having the *flexor longus hallucis* and the *flexor profundus digitorum* joined near the centre by a vinculum (fig. 85); the intrinsic muscles of the syrinx are attached to one pair only of the bronchial semi-rings instead of to two pairs as in the *Pittidæ*.

The sternum is Passerine but has one notch on each side of the hinder border and the manubrium sterni or spina externa is

unforked as in the non-Passerine birds. The oil-gland is present but nude.

The relations of this family to other groups has been dealt with in various ways by different Ornithologists but on the whole it seems advisable to retain them with the great Order of *Passeres*, even if it forms a somewhat aberrant family. In life their very close connection with the *Passeres* is obvious, and the most interesting discoveries of Dr. P. R. Lowe and Mr. G. L. Bates (P. Z. S. 1924, pp. 279–291) show how closely connected the Oriental *Eurylaimidæ* are with the genus *Smithornis*, a genus of small African birds, hitherto generally retained in the family *Muscicapidæ*. Pycraft had already called attention (P. Z. S. 1905) to the curious quadrate and other anatomical characters

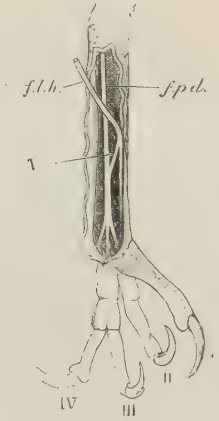



Fig. 85.—Left foot of *Cymbirhynchus macrorhynchus*, from behind. The skin has been turned aside and the superficial flexors removed, so as to show the deep plantar tendons. I, II, III, IV, first, second, third and fourth toes; *f.l.h.*, *flexor longus hallucis*; *f.p.d.*, *flexor profundus digitorum*; *V*, vinculum. (Forbes, P. Z. S. 1880, p. 382.)

which influenced him in considering his *Anisomyodi* to be a branch or Sub-Order only, of the *Passeres*.

In this family the bill is normally very flat and broad. The feet are adapted for perching; hind toe large; the anterior toes joined at the base, the outer and middle toes (third and fourth) having only the last phalanx free (fig. 85). The tarsi, which are short but strong, are reticulated behind and transversely scutellated in front, the scutellation often ill-marked and in some genera entirely disappearing on the inner anterior side of the tarsus. The tail is generally rounded, often strongly graduated.

*Key to Genera.*

A. Nostrils exposed.
  *a*. Tail shorter than wing.
    *a'*. Sides of upper mandible convex and overhanging.
      *a''*. Region below eye feathered .. EURYLAIMUS, p. 461.
      *b''*. Region below eye nude ..... CORYDON, p. 464.
    *b'*. Sides of upper mandible straight and not overhanging.
      *c''*. Nostrils elongate and situated about one-third length of bill from forehead ..... CYMBIRHYNCHUS, p. 466.
      *d''*. Nostrils rounded and situated close to base of bill .. ..... SERILOPHUS, p. 469.
  *b*. Tail longer than wing ..... PSARISOMUS, p. 472.
B. Nostrils concealed by loral plumes.... CALYPTOMENA, p. 475.

## Genus **EURYLAIMUS.**

*Eurylaimus* Horsf., Trans. Linn. Soc., xiii, p. 170 (1822).

Type, *Eurylaimus javanicus* Horsf.

In this genus the bill is large, broad and flat, culmen very blunt, whilst the sides of the upper mandible are overhanging and convex near the gape. The nostrils are rounded, exposed and close to the base of the bill. The wing is rounded, the fourth primary being the longest. The tail is graduated and much shorter then the wing. Rictal bristles present but small. The scutellation of the tarsus in front is almost obsolete and the inside of the tarsus is covered with an undivided lamina.

The sexes are alike or very nearly so.

*Key to Species.*

A. Larger, wing over 100 mm.; head and neck dark vinaceous red..... ..... *E. javanicus*, p. 461.
B. Smaller, wing under 100 mm.; head and throat black ..... *E. ochromalus*, p. 463.

### (1328) **Eurylaimus javanicus javanicus.**

HORSFIELD'S BROADBILL.

*Eurylaimus javanicus* Horsf., Trans. Linn. Soc., xiii, p. 170 (1822) (Java).
*Eurylæmus javanicus.* Blanf. & Oates, iii, p. 4.

**Vernacular names.** *Nok-toa-rao* (Siam).

**Description.** Whole head and neck purplish-red, darkest on the crown, black on the lores and almost black on the forehead and with a very narrow black line below the eye; back and scapulars black, boldly marked with yellow on the outer webs; rump and

upper tail-coverts black with broad yellow tips; tail black, all but the central feathers with a sub-terminal spot or band of fulvous-white; primaries dark brown, all but the second and third with a yellow edge to the base of the outer web and nearly all with a white spot on the base of the inner web; secondaries black, with a broad patch of yellow on the base of the outer webs and a diagonal patch of white at the base of the inner webs; lower parts like the head but paler and brighter towards the vent and abdomen; a narrow purple-black band across the upper breast, sometimes with a wash of bronze-grey both above and below the band, sometimes only below it; thighs black; axillaries and under wing-coverts yellow.

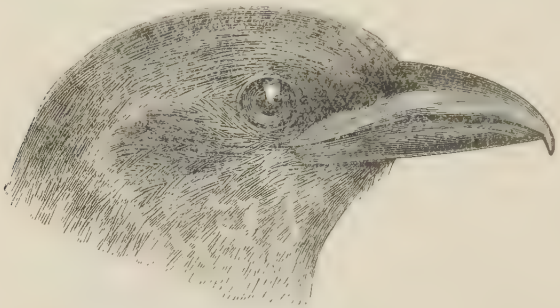


Fig. 86.– Head of *E. j. javanicus*.

**Colours of soft parts.** Iris bright blue or dark china-blue; bill blue on the basal two-thirds, yellow or greenish-yellow on the terminal third and horny on the extreme edges; legs and feet purplish-fleshy or fleshy-brown.

**Measurements.** Total length about 230 mm.; wing 107 to 115 mm.; tail 65 to 70 mm.; tarsus 27 to 28 mm.; culmen 23 to 26 mm. long and 24 to 26 mm. broad at the gape.

**Female.** Similar to the male but with no breast band.

**Young birds** have the head and nape greenish-brown, with faintly paler shafts; back dull brown, with central yellow streaks; the lower surface dull yellowish, with brighter yellow shafts and with dusky streaks on the breast and flanks; the wing-coverts are brown with yellow central streaks, widest at the tips.

**Distribution.** East Central and South Burma from Karenni and Tenasserim. South to Malay States, Java and Sumatra; South and West Siam. The bird found in Borneo has been separated as *Eurylaimus j. brookei*.

**Nidification.** Nests of this bird were taken by Grubauerf in 1880 near Perak, and Waterstradt took several in East Malacca. The nests are like gigantic editions of those of *Leptocoma asiatica*. Shaped like huge pears with an ample porch over the entrance at

the side, they measure anything from two and a half to three and a half feet. They are made of twigs, roots, leaves, grass, moss etc. very strongly and compactly put together and lined with leaves. Over the whole nest are placed all kinds of decorations such as lichen, green moss, caterpillar excretæ etc. fastened on with cobwebs, tendrils and plant stems, which also hang in a long tail below the nest. They are fixed to boughs of trees, often on the banks of streams, and are very conspicuous objects. Only two or three eggs have been taken but it is possible they may lay more than this number. The ground-colour is white or creamy-white and they are speckled and spotted with deep purple, dark reddish-brown or, in one pair, pale reddish-lavender. Ten eggs average 27·0×18·8 mm.; maxima **28·0×19·7** and 27·9×**20·0** mm.: minima **26·1×17·1** mm. They lay from March to May.

**Habits.** This Broadbill frequents both forest and well-wooded open country according to Davison, even entering shady gardens. Its note he says "consists of a few single notes uttered at short intervals and ending with a rolling metallic *chirr*." Unlike some of the Broadbills which are very crepuscular this bird moves about all day, seldom climbing or hopping about the branches but seizing insects on the wing and making short flights from one perch to another. Its diet consists of coleoptera, caterpillars, larvæ etc., but never fruit. Davison found a small lizard about four inches long had been swallowed by one. It is a bird of the plains and lower hills.

## (1329) **Eurylaimus ochromalus.**

THE BLACK-AND-YELLOW BROADBILL.

*Eurylaimus ochromalus* Raffles, Trans. Linn. Soc. xiii, p. 297 (1822) (Sumatra).
*Eurylæmus ochromelas.* Blanf. & Oates, iii, p. 5.

**Vernacular names.** None recorded.

**Description.** Whole head black, except a few white feathers behind the eye; a white collar round the neck, narrow at the back, wide on the lower throat and neck; upper plumage black, the outer webs and tips of the scapulars yellow and the centre of the back, rump and upper tail-coverts boldly marked with bright yellow; tail black, with a yellowish-white sub-terminal spot on the inner web, increasing to a band on the outermost; wing-coverts black; quills black, the primaries with a white patch at the base of all but the outermost on the inner web and the outer web of the outermost on the basal edge; a broad black band across the upper breast; breast and upper abdomen pale claret-pink, changing to bright yellow on the posterior flanks, vent and under tail-coverts; axillaries and under wing-coverts yellow and black; edge of wing yellow; thighs black.

**Colours of soft parts.** Iris lemon-yellow to golden yellow; upper mandible smalt-blue to almost black at the base, bright green on the terminal third, sometimes running in streaks into the basal colour; lower mandible smalt-blue; legs and feet fleshy-pink to horny-brown.

**Measurements.** Total length about 170 mm.; wing 73 to 82 mm.; tail 44 to 50 mm.; tarsus 22 to 24 mm.; culmen 16 to 18 mm. long and 15 to 16 mm. broad at the gape.

**Female.** Similar to the male but with a less perfect black gorget.

**Young birds** have the forehead and a line to the eye yellow; there is no black gorget; the chin and throat are yellowish-white and the under plumage pale and dull with indications of dark streaks all over the breast and flanks.

**Distribution.** Peninsular Burma and Siam, South to Malay States, Sumatra and Borneo.

**Nidification.** A nest and eggs taken by Mackenzie appear to be exactly like those of *E. j. javanicus*. The two eggs measure 23·5 × 17·0 and 23·5 × 16·5 mm.

**Habits.** According to Davison this Broadbill is very similar to other Broadbills in its habits and like them is chiefly insectivorous in its diet and often catches its prey on the wing. The note is said to be similar to that of *E. j. javanicus* but shriller.

## Genus **CORYDON**.

*Corydon* Lesson, Man. d'Orn., p. 177 (1828).

Type, *Corydon sumatranus* Raffles.

The genus *Corydon* is distinguished by its very broad and comparatively deep bill, well hooked at the tip; the upper mandible is overhanging and more convex near the gape than in *Eurylaimus*; there are no rictal bristles, but there are plumules situated in a nude area between the eye and the bill; the tarsus is scutellated in front; sexes alike.

### (1330) **Corydon sumatranus sumatranus.**

THE DUSKY BROADBILL.

*Coracias sumatranus* Raffles, Trans. Linn. Soc., xiii, p. 303 (1822) (Sumatra).
*Corydon sumatranus*. Blanf. & Oates, iii, p. 6.

**Vernacular names.** None recorded.

**Description.** A concealed patch on the lower back white, suffused with yellow to crimson, caused by the bases of the feathers of this part showing through; a broad band of white across the bases of the primaries, a bar of white across the ends

of the tail-feathers, decreasing inwardly and the two central pairs without any white; throat and upper breast dirty brownish-white, the bases more white, the tips darker; remainder of plumage black, the lower plumage tinged with brown.

**Colours of soft parts.** Iris dark brown; orbital skin and gape dark fleshy-pink; upper mandible pale to dark, rather reddish, horny-brown; lower mandible pale yellowish-fleshy, darker near the tip; legs and feet black.

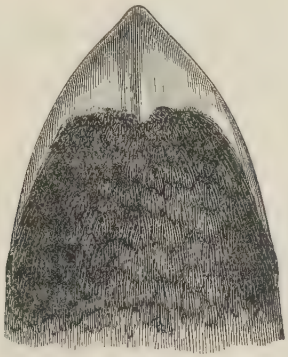


Fig. 87.—Head of *C. s. sumatranus*. from above.

**Measurements.** Total length about 270 mm. ♂ wing 129 to 138 mm.; tail 88 to 94 mm.; tarsus 25 to 26 mm.; culmen 26 to 28 mm. long and 27 to 28 mm. wide at the gape.

**Young birds** are much browner, duller black than adults.

**Distribution.** Tenasserim, South to Sumatra; Siam, Annam and Cochin China. Birds from Borneo have been separated as *Corydon s. brunnescens* and have much browner, less black plumage.

**Nidification.** The Dusky Broadbill breeds in the Malay Peninsula from January to April, during which months nests were taken by Kellow, whilst Hopwood obtained one nest with young in March and other nests with eggs on Nwalabo in Tenasserim during June. The nests are huge pendant structures of grass, twigs, leaves, moss, roots, plant-stems and various other vegetable odds and ends, lined with green leaves. In shape they are gigantic pears with long drawn-out necks where attached to the supporting branch and with a large porch over the entrance. Below hang all sorts of rubbish fastened on to the nest with cobwebs, this tail often hanging a couple of feet below the bottom of the true nest. One nest taken by Hopwood measured no less than seven feet from top to bottom. The nests are nearly always built in dense forest and very often on trees overhanging

streams or pools. The eggs number two to four, with a ground-colour varying from pale dull cream to pale reddish-stone. The markings consist of reddish-brown small blotches and freckles, very numerous over the whole surface and almost obliterating the ground. In a few eggs they are less numerous and in one pair taken by Hopwood the blotches are rather larger, more scanty and show a few underlying marks of pale lavender. Twenty eggs average 29·4 × 22·1 mm. : maxima **34·9 × 24·0** mm. ; minima **27·2** × 22·0 and 29·8 × **20·0** mm.

**Habits.** This large Broadbill is found in the plains and up to about 5,000 feet in the hills of Tenasserim. They frequent both thin and dense forest and seem to be very sluggish birds during the daytime, feeding and moving about principally in the mornings and evenings. Davison says that so stupid and lethargic are they that a party will allow nearly every member to be shot before they will trouble to move away. Kellow, however, informs me that they are much more alert after the parties break up into pairs and breeding commences. The call is said to be an often repeated, mellow note, in addition to which they utter a clear whistle as they fly from tree to tree.

## Genus **CYMBIRHYNCHUS.**

*Cymbirhynchus* Vigors, Mem. Raffles, p. 654 (1830).

Type, *Cymbirhynchus nasutus* Lath. = *C. macrorhynchus* Gmel.

The genus *Cymbirhyuchus* is separable from all the other *Eurylaimidæ* by the nostrils, which lie in a longitudinal depression in the centre of the upper mandible ; in other respects the bill is much like that of *Eurylaimus*, a little narrower and a little higher, whilst the edge of the upper mandible is straight, not over-hanging ; rictal bristles long ; tarsi indistinctly scutellated in front ; sexes alike.

*Key to Species.*

A. Wing over 95 mm. ; inner secondaries with no red spot near the tip ..... *C. macrorhynchus*, p. 466.
B. Wing under 95 mm. ; inner secondaries with a red spot near the tip ..... *C. affinis*, p. 468.

### (1331) Cymbirhynchus macrorhynchus macrorhynchus.

THE BLACK-AND-RED BROADBILL.

*Todus macrorhynchus* Gmel., Syst. Nat., i, p. 446 (1788) (Borneo).
*Cymborhynchus macrorhynchus.* Blanf. & Oates, iii, p. 7

**Vernacular names.** None recorded.

**Description.** Crown, lores, face, chin, a broad pectoral band, back and greater part of wings and tail black ; ear-coverts, throat

and lower plumage from the pectoral band to the under tail-coverts crimson; scapulars lengthened and nearly all white; edge of the shoulder of the wing orange; a patch of white on the inner webs of the inner primaries nearly always concealed; thighs black; under wing-coverts and axillaries mottled black and cream-colour, outer rectrices with a white spot near the tip of the inner web, always absent on the two central pairs and generally on the second and third pairs. In some Bornean specimens the whole of the tail is black; in some the outermost feathers have white spots and in a few the fourth pair are also marked with white. If this character is considered sufficient to separate the Bornean birds, our race would then bear the name *malaccensis* of Salvadori. I find, however, such great variation in the amount of white even in birds as far North as Tenasserim that I feel it is unsafe to divide them.

**Colours of soft parts.** "Irides emerald-green, shot with gold; upper mandible and a line bordering the edge of the lower mandible brilliant blue, remainder of the latter yellowish, edges of both transparent white; legs and feet ultramarine-blue; claws horny" (*Bingham*); "inside of mouth bright blue" (*Davison*).

**Measurements.** Total length about 245 mm.; wing 96 to 103 mm.; tail 74 to 87 mm.; tarsus 24 to 26 mm.; culmen 22 to 24 mm. long and 19 to 20 mm. wide at the gape.

**Young birds** have the black replaced by dark brown; the crimson of the rump is edged with black and nearly all the wing-coverts have small white spots at the tips; the ear-coverts and throat are brown and the black pectoral band obsolete.

In a few adult individuals the ruby-crimson of the throat is bordered by a very fine line of white next the black; individual variation in the colour of the lower parts is great, the crimson often being splashed with orange.

**Distribution.** Tenasserim, down the Malay Peninsula to Sumatra and Borneo; Siam, Annam and Cambodia.

**Nidification.** The Black-and-Red Broadbill breeds from early March to June and Moulton took one nest as late as July in Borneo. The nests are quite typical of the Broadbills; very large round or pear-shaped hanging structures built of twigs, stems of plants, moss, leaves and all kinds of vegetable rubbish, very carelessly put together and decorated with lichen, cocoons, spiders' egg-bags etc. all loosely fastened on with cobwebs The lining is fairly compact, inside of grass with a top layer of green leaves. The nest may be built at any height from 3½ to 40 feet from the ground and is suspended from an outer branch of a bush or tree, nearly always over water. A favourite place for building is a mangrove swamp. The number of eggs laid is two or three and the colouring varies considerably. One type—the most common—has the ground-colour a pale dull salmon, freckled all over with dull pale reddish-brown, in a few eggs the freckles

being larger and becoming small ill-defined blotches. A second type has the ground-colour white or nearly so, whilst the marks are of claret or purplish-red. A third type has the ground white, the marks less numerous and almost purple-black in colour. Twenty-four eggs average 26·8 × 18·8 mm.: maxima **29·3** × 18·8 and 25·7 × **20·7** mm.; minima **25·0** × 20·0 and 25·6 × **18·2** mm.

**Habits.** This is the most familiar of all the Broadbills, for though it sometimes frequents both light and heavy forest it is constantly to be met with in gardens both in and round about villages and even towns, such as Mergui, where it is very common. It is perhaps a rather more active, alert bird than most Broadbills but in other respects differs little from them. It is a bird of the plains, not frequenting hills of any height and being most common on the small islands and the coast.

## (1332) Cymbirhynchus affinis.

THE ARAKAN BLACK-AND-RED BROADBILL.

*Cymbirhynchus affinis* Blyth, J. A. S. B., xv, p. 312 (1846) (Arrakan).
*Cymborhynchus affinis.* Blanf. & Oates, iii, p. 8.

**Vernacular names.** None recorded.

**Description.** Very similar to *C. m. macrorhynchus* but distinguished by having the inner secondaries with long crimson spots; these are on the inner web of the innermost secondary and the outer web of the next two; the white wing-spot is more conspicuous and extends to both webs; the white bars to the tail-feathers are much broader and wider and extend to all but the central pair of feathers; the crimson feathers of the rump are generally very narrowly edged with black.

**Colours of soft parts.** Apparently the same as in the Malay Black-and-Red Broadbill.

**Measurements.** Total length about 210 to 220 mm.; wing 88 to 93 mm.; tail 67 to 71 mm.; tarsus about 23 mm.; culmen 19 to 20 mm. long and 18 to 19 mm. wide at the gape.

**Distribution.** Arakan from about lat. 19° southwards to Cape Negrais, also the Irrawaddy Delta as far East as Rangoon.

**Nidification** unknown.

**Habits.** Very little recorded but so far as is known very much the same as those of the preceding bird. It is found principally in the plains but apparently also in the lower hills.

## Genus SERILOPHUS.

*Serilophus* Swainson, Class. B., ii, p. 262 (1837).

Type, *Serilophus lunatus* Gould.

In this genus the bill is comparatively small and has the sides of the upper mandible straight and not overhanging; the tail is much graduated; the wing is round and the secondaries and inner primaries are truncated and emarginated at the ends of the shafts; rictal bristles present; plumage very lax and soft; the sexes are practically alike.

*Key to Species.*

A. Primaries sharply pointed; back and crown paler and rufescent ..... *S. lunatus*, p. 469.
B. Primaries normal; back and crown darker and with practically no rufous ..... *S. rubropygius*, p. 470.

## (1333) Serilophus lunatus lunatus.

GOULD'S BROADBILL.

*Eurylaimus lunatus* Gould, P. Z. S., 1833, p. 133 (Rangoon).
*Serilophus lunatus*. Blanf. & Oates, iii, p. 9.

**Vernacular names.** None recorded.

**Description.—Male.** Forehead pale ashy-grey changing to ashy-rufous on the crown and nape; a broad black supercilium reaching to the nape; back and scapulars darker ashy-brown, changing gradually into chestnut on the rump and upper tail-coverts; tail black, the outer three or four pairs of feathers with broad white tips; wing-coverts black; primaries black, a broad speculum of blue on the base of all but the first primary and a broad patch of white at the base of the inner webs of all; third and fourth primaries bluish-grey on the end of the inner web and with broad white tips, primaries on either side showing traces of the white; inner truncated primaries and outer secondaries with broad pale chestnut tips to the inner webs and narrow tips of bright blue; innermost secondaries all pale chestnut; lores and sides of head pale dull chestnut; lower plumage grey, almost white on the throat and abdomen and pure white on the under tail-coverts; thighs black; axillaries and under wing-coverts mixed black and grey.

**Colours of soft parts.** "Iris dark brown: bill light blue, paler on the culmen, gape and base of both mandibles orange; eyelids greenish-yellow; legs greenish-orange; claws light blue" (*Oates*).

**Measurements.** Total length about 175 mm.; wing 83 to 91 mm.; tail 61 to 65 mm.; tarsus 20 to 21 mm.; culmen 14 to 15 mm. long and 13 to 14 mm. wide at the gape.

**Female.** Differs from the male in having a gorget of silvery-white feathers across the upper breast and sides of the neck.

**Distribution.** Evergreen forests of Pegu and Karenni to South Tenasserim; South Shan States and Siam. Hopwood also obtained this species at Heinsein in the South Chin Hills. La Touche's *S. l. elisabethæ* from Yunnan is very close to the typical form but, perhaps, darker as is the case with most Yunnan birds. Many forms of this species extend to Hainan and down the Malay Peninsula.

*Rubropygius* and *lunatus* have generally been considered to be races of the same species but the totally different structure of the outer primaries renders it imperative that they should be treated as full species. Moreover, though the general superficial appearance is much the same there are many minor differences in colour which are quite constant and which are not bridged over by intermediate conditions.

**Nidification.** At Heinsein Hopwood found this bird breeding in May and he and Mackenzie found many nests in Tenasserim from March to May; Oates, Bingham and Darling also found nests in these months but Davison had eggs brought to him as late as the 11th July. The nests are similar to those made by other Broadbills but smaller and neater. The nests are made of grass, twigs and plant-stems, lined with bamboo-leaves and grass with a layer of green leaves over them. In size they vary from $10 \times 4$ inches (*Darling*) to others measuring as much as $15 \times 8$ inches or, if the tail and neck are included, as long as two feet or more. They are often built on quite low bushes but more generally on small trees up to 25 feet or so from the ground and, like all Broadbills, they seem to prefer building over water. The eggs number four or five and are white, very faintly tinged with cream, sparsely speckled at the larger end with tiny spots of reddish-purple; at the smaller end the specks are even less numerous. Thirty eggs average 23·7 × 17·2 mm.: maxima **25·0** × 17·0 and 23·7 × **17·8** mm.; minima **22·25** × 17·25 (*Mackenzie*) and 22·6 × **16·3** mm.

**Habits.** Gould's Broadbill is resident wherever found and its habits do not differ from those of the next and, perhaps, better known bird. Davison considered it to be one of the most stupid birds he knew and said that a flock once found, the members could be shot one by one without the rest taking to flight.

## (1334) Serilophus rubropygius.

HODGSON'S BROADBILL.

*Raya rubropygia* Hodgs., J. A. S. B., viii, p. 36 (1839) (Nepal).
*Serilophus rubripygius.* Blanf. & Oates, iii, p. 9.

**Vernacular names.** *Rai-saya* (Nepal): *Rab-kyul* (Lepcha); *Dao-hungari* (Cachari).

**Description.** Differs from the preceding bird in having the upper parts dark ashy-grey, the head and nape with no tinge of rufous, the back but very little; the chestnut is much deeper; primaries black tipped with white; inner primaries and secondaries tipped blue and subtipped white on the outer web and tipped with chestnut on the inner web; the innermost secondaries all of this colour; below pure ashy-grey and the same on the lores and sides of the head; axillaries and under wing-coverts grey and thighs black.

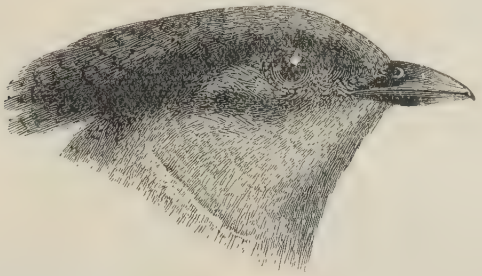


Fig. 88.—Head of *S. rubropygius*, ♀.

**Colours of soft parts.** Iris hazel to deep crimson, powdered with gold; base of upper and lower mandible orange-yellow, remainder smalt-blue; legs and feet dull pale green to plumbeous-green.

**Measurements.** About the same as in *S. lunatus*: wing 83 to 87 mm.; tail 63 to 70 mm.

**Female.** Like the male but with a demi-gorget of white-tipped feathers on either side of the neck.

**Distribution.** Nepal, Sikkim to East Assam; Cachar, Sylhet, Hill Tippera, Chittagong Hill Tracts, Lushai Hills and Manipur.

**Nidification.** Gammie first took the nest of this bird in May in Sikkim. From 1887 onwards I must have seen hundreds in various parts of Assam, whilst Coltart, Primrose and others have also taken them. They breed from the end of April to the middle of July but I do not think they ever have two broods. The nest is the usual hanging structure, shaped like a pear with a long neck and with a tail of rubbish hanging below it. It is neater and more compactly built than most nests of Broadbills but even so is often of considerable bulk and weight. Some are as much as 2 feet 6 inches from top to bottom and over a foot in diameter, but the majority are about 15 inches by about 8 inches whilst a few are even smaller. The outside is rough and badly finished off but the inside is very compact and solid, nearly always with a lining of green leaves. Most nests are built over water, though in many cases this is but a trickle along a tiny

ravine or a pool one can step across. The eggs number four to seven. A few are pure spotless white and a few are a warm pink spotted sparsely with claret, but the majority are not distinguishable from those of Gould's Broadbill though on an average the pink tinge is more noticeable and the spots are larger and bolder. Eighty eggs average 23·6 × 17·3 mm.; maxima **25·0** × 17·0 and 23·3 × **18·1** mm.; minima **22·3** × **16·2** mm.

**Habits.** This Broadbill is resident from the plains next the hills up to about 5,000 feet but is most common between 1,000 and 3,000 feet. It frequents forest of every kind; dense or thin, evergreen or mixed. It is also found in bamboo-jungle, scrub and light tree-jungle but it seems to prefer mixed bamboo and tree forest, especially such as grow on the banks of rivers. It is a very crepuscular bird, feeding principally in the early mornings and evenings and at such times is fairly alert and wide-awake though during the day it is extraordinarily stupid and lethargic. I have never been able, even had I wished, to shoot every member of a flock but I have more than once shot a pair before the others took to flight. When feeding they move about fairly freely on the branches of trees and will also capture insects on the wing, though their flight is rather heavy and awkward except for sudden short efforts. They feed on any kind of insect food and much on larvæ and grubs which they extract from the bark of trees. Their notes consist of a soft, rather musical whistle and a low *chir-r-r*, uttered both when sitting and flying.

## Genus **PSARISOMUS**.

*Psarisomus* Swainson, Class. Birds, ii, p. 261 (1837).

Type, *Psarisomus dalhousiæ* Jameson.

In this genus the bill is similar to that of *Eurylaimus* but smaller, whilst the edge of the upper mandible is straight, not overhanging; there are no rictal bristles but the loral feathers are directed forward; the tail is longer than the wing and very strongly graduated, the outermost feathers being about one-third the length of the middle; the wing is round, the third or fourth quill longest; scutellations of the tarsus indistinct on the outer front, obsolete on the inside; the sexes are alike.

### (1335) **Psarisomus dalhousiæ.**

THE LONG-TAILED BROADBILL.

*Eurylaimus dalhousiæ* Jameson, Edin. N. Ph. J., xviii, p. 389 (1835) (North India).
*Psarisomus dalhousiæ*. Blanf. & Oates, iii, p. 11.

**Vernacular names.** *Rai-i* (Nepal.); *Dang-mo-mith, Dang-mit-pho* (Lepcha); *Dao-hangari rajah* (Cachari).

**Description.** A narrow frontal line, lores and anterior ear-coverts greenish-yellow; a patch on the crown bright blue; a

PSARISOMUS DALHOUSIAE, ¾ life size.
The Long-tailed Broadbill.

smaller, elongate spot on either side of the hinder crown bright yellow, often suffused in part with bright blue or green and sometimes paler at the base; remainder of crown and nape, posterior ear-coverts and sides of neck black; chin and throat bright yellow produced as a collar behind the black but interrupted in the middle by a patch of bright blue; upper plumage, lesser and median wing-coverts and innermost secondaries bright grass-green; greater coverts black, edged with grass-green; primaries black, the basal half of the outer webs brilliant ultramarine, shading into blue-green and then green towards the tips; secondaries black with green outer edges; central tail-feathers

Fig. 89.—Head of *P. dalhousiæ*.

bright blue, gradually getting more green towards the outermost feathers which are blackish on the inner webs; under surface of tail and wing black, the latter showing a white patch on base of the inner webs of the primaries, quite concealed from above; thighs blackish; remainder of lower plumage bright pale grass-green, in most individuals more or less washed with blue.

**Colours of soft parts.** Iris brown or red-brown; bill apple-green, the edges of the commissure paler and yellowish and a broad dark streak down the centre; legs and feet dull light green, or plumbeous-green.

**Measurements.** Total length 250 to 270 mm.; wing 95 to 107 mm.; tail 95 to 136 mm.; tarsus 27 to 28 mm.; culmen 17 to 18 mm. long and 16 to 17 mm. wide at the gape.

Northern birds are larger than Southern but there is much overlapping and I can find no other characters by which we can separate this wide-spread species into geographical races. Wing measurements in detail are as follows:—

| | |
|---|---|
| Sikkim, Assam and Shan States .... | 100 to 107 mm. |
| Annam ..... | 100 to 101 mm. |
| Malay States ..... | 95 to 104 mm. |
| Borneo and Sumatra ..... | 95 to 100 mm. |

**Young birds** are like the adult but have no blue on the head and the chin and throat are greenish-yellow.

The colours of the soft parts are different: the iris is pale glaucous blue and the orbital skin livid yellow; the bill is pale to dark pinkish-horny; the legs and feet livid flesh-colour, merely tinged with brown.

**Distribution.** Himalayas from Kumaon and Mussoorie on the West to Eastern Assam; Manipur, Lushai Hills, Tippera and Chittagong Hill Tracts; throughout the hills of Burma South to the Malay States; Shan States, Siam and Annam; Borneo and Sumatra.

**Nidification.** This beautiful Broadbill breeds freely between 2,000 and 4,000 feet and less frequently up to 6,000 feet and down to the foot-hills and adjoining plains. The earliest date I have taken eggs was the 3rd of April and the latest the 24th of August, undoubtedly a second brood. May and June are the principal breeding months. The nest is quite typical of the family and larger than any except that of the Dusky Broadbill. It is the usual immense pear-shaped structure, even more untidy than most and with a very long tail, whilst in size it may be anything between 3 feet and 4½ feet long. The lining is occasionally of green leaves but generally of dead leaves, grass and fibres only. All the nests I have seen have been in evergreen-forests, though in some cases these were comparatively narrow strips on the banks of streams and occasionally mixed with bamboo. In nine cases out of ten they are built so as to overhang water. One nest is recorded as having been attached to telegraph-wires. The eggs number from four to eight, five and six being the usual full clutch; in colour they vary very greatly and, curiously, they go through exactly the same types of coloration as do those of the Common Black Drongo. Some are pure white; others white boldly and handsomely blotched with light reddish-brown or deep reddish-brown; others again vary from the palest cream or pink to warm salmon-pink with the same variation in the blotches. Most eggs have underlying marks of reddish neutral tint or lavender but they are not very distinct or very numerous. Two hundred eggs average 27·4 × 19·4 mm.: maxima **29·6 × 19·5** and 29·2 × **20·5** mm.; minima **25·0** × 18·8 and 27·0 × **17·0** mm.

**Habits.** The Long-tailed Broadbill is resident from the foot-hills up to about 6,000 feet and in the Winter wanders into the plains. It is a bird of evergreen-forests and its favourite haunts seem to be deep shady ravines in dense forest without much undergrowth. Like most Broadbills its active hours are in the mornings and evenings; at these times it is fairly alert but it is very confiding and fearless and does not resent being watched at close quarters. It is, like all the family, mainly insectivorous but it will eat any small living thing and one I shot had eaten two small green tree-frogs. It eats many larvæ and pupæ which it gets out of the bark of trees, to which it may often be seen clinging for this purpose. A noticeable habit of this Broadbill is to alight at the extreme end of a hanging creeper or pendent

bough and thence climb cautiously up it, searching the leaves for insects as it climbs. Its actions when thus engaged are very parrot-like and the broad soft soles of its feet give it a very tenacious grasp of comparatively small twigs or plant-stems. It flies well but not very quickly and often catches insects in flight. It has a soft chirring note when feeding, a not unmusical, but rather shrill, whistling call and several harsh tin-kettley notes when annoyed or disturbed.

## Genus CALYPTOMENA.

*Calyptomena* Raffles, Trans. Linn. Soc. xiii, p. 295 (1822).

Type, *Calyptomena viridis* Raffles.

In this genus the bill is smaller than in any other species of the *Eurylaimidæ*, the culmen is rather high; the nostrils are situated at the base of the bill and these and the greater part of the bill itself are concealed by the feathers of the lores which are lengthened and directed forwards; there are no rictal bristles; the tail is short and almost square; the tarsi are distinctly scutellated in front; the sexes are not alike.

Fig. 90.—Head of *C. viridis*.

### (1336) Calyptomena viridis.

THE GREEN BROADBILL.

*Calyptomena viridis* Raffles, Trans. Linn. Soc., xiii, p. 295 (1822) (Sumatra); Blanf. & Oates, iii, p. 12.

**Vernacular names.** None recorded.

**Description.—Male.** A small yellow spot above and in front of the eye; forehead, completely concealed by the bristly loral feathers, a large spot behind the ear-coverts and three broad bands across the wing velvety-black; inner webs of all wing-quills and terminal portions of outer webs of primaries black; remainder of plumage grass-green, darkest on the crown, back, scapulars and innermost secondaries; the sides of the head, rump and upper tail-coverts are very bright and paler green; the abdomen, vent and under tail-coverts are sometimes faintly washed with blue.

**Colours of soft parts.** Iris brown; upper mandible pale to dark horny-brown or quite black in old males, the tip and the lower mandible light reddish-horny or brownish-orange; legs pale dirty or horny green, sometimes tinged with bluish, sometimes with purplish-grey.

**Measurements.** Total length about 190 mm.; wing 93 to 104 mm.; tail 38 to 40 mm.; tarsus 20 to 21 mm.; culmen 10 to 11 mm. long and 14 to 15 mm. wide at the gape.

**Female.** Paler everywhere than the male, especially below; a ring round the eye shows up bright grass-green, but the rump, upper tail-coverts and sides of the head are not conspicuously brighter than the surrounding parts; there are no black markings and the loral feathers are not so long as in the male.

**Distribution.** Southern Burma and Siam, through the Malay States to Sumatra and Borneo.

**Nidification.** The Green Broadbill breeds in Tenasserim in April and in July in Borneo, in which month Moulton took two eggs very hard-set. The nest is like that of the other Broadbills but has generally more grass used in its construction. It is also more solid and better put together with fewer decorations and, as a rule, very little tail. It is built on a hanging bough over water but seems always to be placed half-way down the branch and not at the tip. The lining is of soft grass and leaves, rarely of green leaves. Like all Broadbills this species seems to prefer to have its nest overhanging water, if possible over quickly running streams. The eggs number two or three and are a uniform pale yellow-cream with no markings of any kind. They vary between $27{\cdot}2 \times 19{\cdot}5$ and $30{\cdot}6 \times 21{\cdot}3$ mm. in size and fourteen eggs average $28{\cdot}9 \times 20{\cdot}3$ mm.

**Habits.** Davison and Hopwood both obtained this beautiful Broadbill in Tenasserim either in dense evergreen or in rather thin forest, but generally the former. The birds are most active in the mornings and evenings, at which times they may be seen hopping about from one branch to another and feeding almost entirely on fruit, berries and figs. They keep much to the tops of the higher trees, sometimes singly or in pairs, at other times collecting in small flocks. Their note is said to be a soft, pleasant whistle.

# ALPHABETICAL INDEX.

[*Synonyms in italics.*]


*abbotti* (*Pitta*), 457.
Acanthis, 154
*Acanthis*, 154.
Acmonorhynchus, 433.
*Acmonorhynchus*, 433.
Acridotheres, 52.
*Acridotheres*, 52.
*acuticauda* (*Munia*), 84.
*acuticauda* (*Uroloncha*), 84.
*acuticauda subsquamicollis* (Uroloncha), 86.
acutirostris (Calandrella), 327.
*acutirostris* (*Calandrella*), 327.
acutirostris acutirostris (Calandrella, 327.
acutirostris tibetana (Calandrella), 328.
*adamsi* (*Alauda*), 331.
*adamsi* (*Alaudula*), 331.
*adamsi* (*Montifringilla*), 187.
Æthiopsar, 56.
*Æthiopsar*, 56.
Æthopyga, 374.
*Æthopyga*, 374.
affinis (Arachnothera), 417.
*affinis* (*Calornis*), 24.
*affinis* (*Cinnyris*), 417.
affinis (Cymbirhynchus), 468.
*affinis* (*Cymbirhynchus*), 468.
*affinis* (*Cymborhynchus*), 468.
*affinis* (*Hesperiphona*), 103.
*affinis* (*Mirafra*), 339.
*affinis* (*Pycnorhamphus*), 103.
*affinis* (*Pyrrhulauda*), 355.
affinis modesta (Arachnothera), 418.
Agropsar, 43.
*Agropsar*, 43.
Alæmon, 304.
*Alæmon*, 304.
Alauda, 314.
*Alauda*, 314.
Alaudidæ, 302.
alaudipes (Alæmon), 304.
*alaudipes* (*Upupa*), 304.
alaudipes doriæ (Alæmon), 304.
Alaudula, 329.
*Alaudula*, 329.
alba (Motacilla), 255.
*alba* (*Motacilla*), 256, 257.
alba alba (Motacilla), 256.
alba baicalensis (Motacilla), 260.
alba dukhunensis (Motacilla), 257.
alba ocularis (Motacilla), 261.
alba persica (Motacilla), 258.
alba personata (Motacilla), 259.
*albigula* (*Otocoris*), 307.
*albocinctus* (*Acridotheres*), 60.
albocinctus (Æthiopsar), 60.
*albocinctus* (*Æthiopsar*), 60.
*alboides* (*Motacilla*), 262.
*alpestris* (*Alauda*), 308.
alpestris (Otocoris), 308.
alpestris elwesi (Otocoris), 310.
alpestris longirostris (Otocoris), 309.
*alpicola* (*Passer*), 186.
*altaica* (*Fringilla*), 192.
*altera* (*Pyrrhula*), 112.
Amandava, 95.
*Amandava*, 95.
amandava (Amandava), 96.
*amandava* (*Fringilla*), 96.
*amandava* (*Sporæginthus*), 96.
*ambiguus* (*Serinus*), 161.
Ammomanes, 349.
*Ammomanes*, 349.
Ampeliceps, 44.
*Ampeliceps*, 44.
*andamanensis* (*Eulabes*), 20.
*andamanensis* (*Oriolus*), 10.
*andamanensis* (*Sturnia*), 41.
*andamanensis* (*Temenuchus*), 41.
*andamanica* (*Arachnechthra*), 404.
andersoni (Æthopyga), 378.
Anisomyodi, 441.

Anthocincla, 442.
*Anthocincla*, 442.
Anthreptes, 408.
*Anthreptes*, 408.
Anthus, 277.
*Anthus*, 277.
Arachnothera, 413.
*Arachnothera*, 413.
Arachnotherinæ, 413.
*arcuata* (*Emberiza*), 199.
arvensis (Alauda), 315.
*arvensis* (*Alauda*), 315, 316, 317.
arvensis dulcivox (Alauda), 315.
*arvensis herberti* (*Alauda*), 322.
arvensis inopinata (Alauda), 316.
arvensis japonica (Alauda), 317.
assamica (Mirafra), 336, 337.
assamica affinis (Mirafra), 339.
assamica marionæ (Mirafra), 338.
assamica assamica (Mirafra), 337.
assamica microptera (Mirafra), 340.
*asiatica* (*Arachnechthra*), 396, 398, 399.
*asiatica* (*Certhia*), 396.
asiatica (Leptocoma), 396.
asiatica asiatica (Leptocoma), 396.
asiatica brevirostris (Leptocoma), 399.
asiatica intermedia (Leptocoma), 398.
*atricapilla* (*Loxia*), 80.
atricapilla (Munia), 80.
*atricapilla* (*Munia*), 80, 81.
atricapilla atricapilla (Munia), 80.
atricapilla rubronigra (Munia), 81.
*aurata* (*Arachnothera*), 416.
aurantiaca (Pyrrhula), 109.
*aurantiaca* (*Pyrrhula*), 109.
*aureiventer* (*Zosterops*), 365.
aureiventris (Zosterops), 364.
*aureiventris* (*Zosterops*), 365.
aureiventris aureiventris (Zosterops), 365.
aureiventris mesoxantha (Zosterops), 365.
aureola (Emberiza), 210.
*aureola* (*Emberiza*), 210.
*australis* (*Alauda*), 320.

*baicalensis* (*Motacilla*), 260.
*baya* (*Ploceus*), 67.
*bengalensis* (*Ploceus*), 72.
*benghalensis* (*Loxia*), 72.
benghalensis (Ploceus), 72.
*beema* (*Motacilla*), 267.
*bimaculata* (*Alauda*), 312.
*bimaculata* (*Melanocorypha*), 312.
bimaculata bimaculata (Melanocorypha), 312.
*blakistoni* (*Anthus*), 298.
blanfordi (Montifringilla), 190.
*blanfordi* (*Montifringilla*), 190.
*blythi* (*Propasser*), 124.
*blythii* (*Pastor*), 40.
*blythii* (*Sturnia*), 40.
Bombycilla, 233.
*Bombycilla*, 223.
Bombycillidæ, 223.
*borealis* (*Motacilla*), 269.
*brachydactyla* (*Alauda*), 324.
brachydactyla (Calandrella), 323.
*brachydactyla* (*Calandrella*), 324.
brachydactyla brachydactyla (Calandrella), 324.
brachydactyla dukhunensis (Calandrella), 326.
brachydactyla longipennis (Calandrella), 325.
brachyura (Pitta), 453.
*brachyura* (*Pitta*), 453
*brachyurus* (*Corvus*), 453.
*brasiliana* (*Certhia*), 400.
brasiliana (Leptocoma), 400.
brandti (Fringillauda), 193.
*brandti* (*Fringillauda*), 193, 194.
*brandti* (*Leucosticte*), 193.
brandti brandti (Fringillauda), 193.
brandti hæmatopygia (Fringillauda), 194.
*brevirostris* (*Acanthis*), 156.
*brevirostris* (*Linota*), 156.
*brevirostris* (*Nectarinia*), 399.
buchanani (Emberiza), 208.
*burmanica* (*Graculipica*), 50.
burmanica (Gracupica), 50.
*burmanica Sturnia*), 50.
burtoni (Callacanthus), 152.
*burtoni* (*Callacanthus*), 152.
*burtoni* (*Carduelis*), 152.

*cærulea* (*Myiothera*), 447.
*cærulea* (*Pitta*), 447.
cærulea cærulea (Pitta), 447.
*calandra* (*Emberiza*), 218.
calandra calandra (Emberiza), 218.
Calandrella, 323.
*Calandrella*, 323.
*calcaratus* (*Budytes*), 274.
Callacanthus, 152.
*Callacanthus*, 152.
Calyptomena, 475.
*Calyptomena*, 475.
campestris (Anthus), 292.
*campestris* (*Anthus*), 293.
*campestris* (*Alauda*), 292.
campestris campestris (Anthus), 292.
campestris griseus (Anthus), 293.
*campestris griseus* (*Anthus*), 293.
*campestris minor* (*Agrodroma*), 293.
caniceps (Carduelis), 150.

*caniceps* (*Carduelis*), 150.
caniceps caniceps (Carduelis), 150.
caniceps subulata (Carduelis), 151.
cannabina (Acanthis), 154.
*cannabina* (*Fringilla*), 154.
cannabina fringillirostris (Acanthis), 154.
*cantillans* (*Mirafra*), 334.
cantillans cantillans (Mirafra), 334.
*cantillans williamsoni* (*Mirafra*), 336.
capensis (Sturnopastor), 62.
*capensis* (*Sturnus*), 62.
capensis capensis (Sturnopastor), 62.
capensis dehræ (Sturnopastor), 63.
*capensis dehræ* (*Sturnopastor*), 63.
capensis floweri (Sturnopastor), 64.
capensis superciliaris (Sturnopastor), 64.
*caru* (*Æthopyga*), 376.
Carduelis, 149.
*carduelis*, 149.
carduelis (Carduelis), 149.
*carduelis* (*Fringilla*), 149.
carduelis major (Carduelis), 149.
*carnipes* (*Coccothraustes*), 104.
carnipes (Perissospiza), 104.
*carnipes* (*Pycnorhamphus*), 104.
Carpodacus, 134.
*Carpodacus*, 134.
*cashmeriensis* (*Delichon*), 228.
caspicus (Parus), 265.
*cervina* (*Motacilla*), 294.
cervinus (Anthus), 294.
*cervinus* (*Anthus*), 294.
*ceylonensis* (*Oriolus*), 12.
ceylonensis (Zosterops), 366.
*ceylonensis* (*Zosterops*), 366.
Chalcoparia, 368.
*Chalcoparia*, 368.
Chalcopariidæ, 368.
Chalcostetha, 373.
*Chalcostetha*, 373.
chalcostetha (Chalcostetha), 373.
*chalcostetha* (*Nectarinia*), 373.
*chalybeius* (*Calornis*), 22, 23, 24.
*chendoola* (*Alauda*), 343.
*chinensis* (*Hirundo*), 235.
chinensis (Oriolus), 7.
*chinensis* (*Oriolus*), 7.
chinensis andamanensis (Oriolus), 10.
chinensis indicus (Oriolus), 7.
chinensis macrourus (Oriolus), 10.
chinensis tenuirostris (Oriolus), 9.
chrysæa (Ploceëlla), 76.
*chrysæa* (*Ploceus*), 76.
*chrysochlore* (*Dicæum*), 427.
chrysogenys (Arachnothera), 413.
*chrysogenys* (*Arachnothera*), 413.
*chrysogenys* (*Nectarinia*), 413.
chrysogenys intensiflava (Arachnothera), 413.
*chrysogenys intensiflava* (*Arachnothera*), 413.
Chrysomitris, 162.
*Chrysomitris*, 162.
chrysorrheum (Dicæum), 426.
*chrysorrheum* (*Dicæum*), 426.
chrysorrheum chrysochlore (Dicæum), 427.
chrysorrheum intensum (Dicæum), 426.
*chryorrheum intensum* (*Dicæum*), 426.
*chrysorrhœum* (*Dicæum*), 426, 427.
cia (Emberiza), 204.
*cia* (*Emberiza*), 204.
cia godlewskii (Emberiza), 207.
cia par (Emberiza), 206.
*cia par* (*Emberiza*), 206.
cia stracheyi (Emberiza), 205.
cia yunnanensis (Emberiza), 207.
*cinctura zarudnyi* (*Ammomanes*), 351.
cineraceus (Spodiopsar), 36.
*cineraceus* (*Spodiopsar*), 36.
*cineraceus* (*Sturnus*), 36.
*cinerascens* (*Alauda*), 315.
cinerea (Motacilla), 265.
*cinerea* (*Motacilla*), 265.
cinerea caspica (Motacilla), 265.
*cinnamomea* (*Pyrgita*), 180.
*cinnamomeus* (*Passer*), 180, 181, 182.
*citreoloides* (*Motacilla*), 274.
citreola (Motacilla), 273.
*citreola* (*Motacilla*), 273.
citreola citreola (Motacilla), 273.
citreola calcarata (Motacilla), 274.
citrinella (Emberiza), 219.
*citrinella* (*Emberiza*), 219.
citrinella erythrogenys (Emberiza), 219.
*coccinea* (*Pitta*), 454.
Coccothraustes, 99.
*Coccothraustes*, 99.
coccothraustes (Coccothraustes), 100.
*coccothraustes* (*Loxia*), 100.
coccothraustes humii (Coccothraustes), 100.
Coccothraustinæ, 99.
*cockburniæ* (*Anthus*), 285.
*cœlebs* (*Fringilla*), 163.
cœlebs cœlebs (Fringilla), 163.
*cœlivox* (*Alauda*), 321.
*concolor* (*Dicæum*), 429, 430.
*concolor* (*Hirundo*), 237.
concolor (Ptyonoprogne), 237.
*concolor* (*Ptyonoprogne*), 237.
*confucius* (*Passer*), 172.
*contra* (*Sturnopastor*), 62, 63.
coronatus (Ampeliceps), 44.
*coronatus* (*Ampeliceps*), 44.

Corydon, 464.
*Corydon*, 464.
*coutelli* (*Anthus*), 297.
*crassirostris* (*Carpodacus*), 141.
*cristata* (*Alauda*), 343.
cristata (Galerida), 343.
*cristata* (*Galerita*), 343, 345.
cristata chendoola (Galerida), 343.
cristata leautungensis (Galerida), 346.
cristata magna (Galerida), 345.
*cruentata* (*Certhia*), 421.
cruentatum (Dicæum), 421.
*cruentatum* (*Dicæum*), 421, 423.
cruentatum cruentatum (Dicæum), 421.
cruentatum ignitum (Dicæum), 423.
cruentatum siamensis (Dicæum), 424.
*cruentatum siamensis*, (*Dicæum*), 424.
cucullata (Pitta), 455.
*cucullata* (*Pitta*), 455.
cucullata abbotti (Pitta), 457.
cucullata cucullata (Pitta), 455.
curvirostra (Loxia), 115.
*curvirostra* (*Loxia*), 115.
curvirostra himalayana (Loxia), 115.
*cyanea* (*Irena*), 3.
*cyanea* (*Pitta*), 448.
cyanea cyanea (Pitta), 448.
*cyanoptera* (*Pitta*), 450.
Cymbirhynchus, 466.
*Cymbirhynchus*, 466.

dabryi (Æthopyga), 387.
*dabryi* (*Æthopyga*), 387.
*dabryi* (*Nectarinia*), 387.
*dalhousiæ* (*Eurylaimus*), 472.
dalhousiæ (Psarisomus), 472.
*dalhousiæ* (*Psarisomus*), 472.
daurica (Hirundo) 248.
*daurica* (*Hirundo*), 248.
daurica daurica (Hirundo), 248.
daurica erythropygia (Hirundo), 251.
daurica hyperythra (Hirundo), 253.
daurica nepalensis (Hirundo), 250.
daurica rufula (Hirundo), 252.
daurica striolata (Hirundo), 249.
*davidanus* (*Carpodacus*), 127.
Delichon, 226.
*Delichon*, 226.
Dendronanthus, 275.
*Dendronanthus*, 275.
*deserti* (*Alauda*), 352.
deserti (Ammomanes), 352.
deserti phœnicuroides (Ammomanes), 352.
*deva* (*Alauda*), 347.
deva (Galerida), 347.
*deva* (*Galerita*), 347.
*desertorum* (*Alæmon*), 304.
Dicæidæ, 420.
Dicæum, 421.
*Dicæum*, 421.
*diluta* (*Cotile*), 232.
*domestica* (*Fringilla*), 169.
domesticus (Passer), 169.
*domesticus* (*Passer*), 170, 172, 173.
domesticus confucius (Passer), 172.
domesticus indicus (Passer), 170.
domesticus parkini (Passer), 173.
*domesticus parkini* (Passer), 173.
*domicola* (*Hirundo*), 244.
*doriæ* (*Certhilauda*), 304.
*dubius* (*Carpodacus*), 125.
*dukhunensis* (*Alauda*), 326.
*dukhunensis* (*Calandrella*), 326.
*dukhunensis* (*Motacilla*), 257.
*dulcivox* (*Alauda*), 315.
*dzungaricus* (*Sturnus*), 35.

*edwardsii* (*Carpodacus*), 131.
edwardsii (Propasser) 131.
*edwardsii* (*Propasser*), 131.
*edwardsii saturatus* (*Carpodacus*), 131.
edwardsii saturatus (Propasser), 131.
*egregia* (*Zosterops*), 361.
*elwesi* (*Octocorys*), 310.
Emberiza, 195.
*Emberiza*, 195.
Emberizinæ, 195.
epauletta (Pyrrhoplectes), 114.
*epauletta* (*Pyrrhoplectes*), 114.
*epauletta* (*Pyrrhula*), 114.
*erythaca* (*Pyrrhula*), 111.
erythaca altera (Pyrrhula), 112.
erythaca erythaca (Pyrrhula), 111.
*erythrina* (*Loxia*), 134, 135.
erythrinus (Carpodacus), 134.
*erythrinus* (*Carpodacus*), 135, 136, 137.
erythrinus erythrinus (Carpodacus), 135.
erythrinus kubanensis (Carpodacus), 136.
*erythrinus kubanensis* (*Carpodacus*) 136.
erythrinus roseatus (Carpodacus), 137.
erythrocephala (Pyrrhula), 110.
*erythrocephala* (*Pyrrhula*), 110.
*erythrogenys* (*Emberiza*), 219.
erythroptera (Mirafra), 340.
*erythroptera* (*Mirafra*), 341, 342.
erythroptera erythroptera (Mirafra), 341.
erythroptera sindiana (Mirafra), 342.
*erythroptera sindiana* (*Mirafra*), 342.

*erythropygia* (*Hirundo*), 251.
*erythropygia* (*Sturnia*), 41.
*erythropygia katchalensis* (*Sturnia*), 42.
*erythrorhynchos* (*Certhia*), 432.
erythrorhynchum (Dicæum), 432.
erythrorhynchum ceylonensis (Dicæum), 433.
erythrorhynchum erythrorhynchum (Dicænm), 432.
*erythrorhynchus* (*Dicæum*), 432, 433.
*erythrorhynchus ceylonensis* (*Dicæum*), 433.
Erythrospiza, 140.
*Erythrospiza*, 140.
Erythrura, 93.
*Erythrura*, 93.
Estrildinæ, 77.
Eulabes, 16.
*Eulabes*, 16.
Eulabetidæ, 459.
Eurylaimidæ, 459.
Eurylaimus, 461.
*Eurylaimus*, 461.

feldegg (Motacilla), 271.
*feldegg* (*Motacilla*), 271.
feldegg feldegg (Motacilla), 271.
feldegg melanogriseus (Motacilla), 272.
*feldeggi* (*Motacilla*), 271, 272.
*femininus* (*Carpodacus*), 126.
*filifera* (*Hirundo*), 245.
*flammaxillaris* (*Arachnechthra*), 403.
flammaxillaris (Leptocoma), 403.
*flammaxillaris* (*Nectarinia*), 403.
flammaxillaris andamanica (Leptocoma), 404.
flammaxillaris flammaxillaris (Leptocoma), 403.
flava (Motacilla), 267.
*flava* (*Motacilla*), 267.
flava beema (Motacilla), 267.
flava leucocephala (Motacilla), 270.
flava taivana (Motacilla), 270.
flava thunbergi (Motacilla), 269.
flaveolus (Passer), 182.
*flaveolus* (*Passer*), 182.
*flaviceps* (*Ploceus*), 73.
*flavicollis* (*Gymnorhis*), 166.
*flavicollis transfuga* (*Gymnoris*), 168.
flavidiventris (Amandava), 97.
*flavidiventris* (*Estrelda*), 97.
*flavidiventris* (*Sporæginthus*), 97.
flavirostris (Acanthis), 155.
*flavirostris* (*Fringilla*), 155.
flavirostris brevirostris (Acanthis), 156.
flavirostris montanella (Acanthis), 157.
flavirostris rufostrigata (Acanthis), 157.
*floweri* (*Sturnopastor*), 64.
fluvicola (Hirundo), 246.
*fluvicola* (*Hirundo*), 246.
*formosa* (*Fringilla*), 94.
formosa (Stictospiza), 94.
*formosa* (*Stictospiza*), 94.
Fringilla, 163.
*Fringilla*, 163.
Fringillauda, 190.
*Fringillauda*, 190.
Fringillidæ, 98.
Fringillinæ, 107.
*fringillirostris* (*Acanthis*), 154.
*fringillirostris* (*Linota*), 154.
frontalis (Pyrrhulauda), 355.
*frontalis* (*Pyrrhulauda*), 355.
frontalis affinis (Pyrrhulauda), 355.
fucata (Emberiza), 198.
*fucata* (*Emberiza*) 198, 199.
fucata arcuata (Emberiza), 199.
fucata fucata (Emberiza), 198.
*fumigata* (*Munia*), 83.
*fumigata* (*Uroloncha*), 83.
fuscus (Æthiopsar), 56.
*fuscus* (*Æthiopsar*), 57.
*fuscus* (*Pastor*), 57.
fuscus fuscus (Æthiopsar), 57.
*fuscus infuscatus* (*Æthiopsar*), 59.
fuscus torquatus (Æthiopsar), 58.

*galbula* (*Oriolus*), 5.
Galerida, 342.
*Galerida*, 342.
garrula (Bombycilla), 223.
*garrulus* (*Lanius*), 223.
ginginianus (Acridotheres), 55.
*ginginianus* (*Acridotheres*), 55.
*ginginianus* (*Turdus*), 55.
*githaginea* (*Carpodacus*), 141.
githaginea (Erythrospiza), 141.
*githaginea* (*Fringilla*), 141.
githaginea crassirostris (Erythrospiza), 141.
*godlewskii* (*Agrodroma*), 289.
*godlewskii* (*Emberiza*), 207.
*gouldiæ* (*Æthopyga*), 385.
*gouldiæ* (*Cinnyris*), 385.
gouldiæ gouldiæ (Æthopyga), 385.
gouldiæ isolata (Æthopyga), 386.
*gouldiæ isolata* (*Æthopyga*), 386.
Gracupica, 49
*Gracupica*, 49.
granatina (Pitta), 454.
*granatina* (*Pitta*), 454.
granatina coccinea (Pitta), 454.
*grandis* (*Acridotheres*), 59.
*grandis* (*Æthiopsar*), 59.
*grandis* (*Carpodacus*), 128.

*grandis* (*Propasser*), 128.
grandis grandis (Æthiopsar), 59.
grandis infuscatus (Æthiopsar), 59.
*grisea* (*Alauda*), 353.
grisea (Pyrrhulauda), 353.
*grisea* (*Pyrrhulauda*), 353.
gulgula (Alauda), 318.
*gulgula* (*Alauda*), 318, 319, 320, 321, 322.
gulgula australis (Alauda), 320.
gulgula cœlivox (Alauda), 321.
gulgula gulgula (Alauda), 319.
gulgula guttata (*Alauda*), 318.
gulgula herberti (Alauda), 322.
gulgula inconspicua (Alauda), 322.
gurneyi (Pitta), 457.
*gurneyi* (*Pitta*), 457.
*guttata* (*Alauda*), 318.
*gutturalis* (*Hirundo*), 241.
Gymnoris, 164.
*Gymnoris*, 164.

*hæmatopygia* (*Montifringilla*), 194.
Hæmatospiza, 116.
*Hæmatospiza*, 116.
*hasselti* (*Arachnechthra*), 400.
*himalayana* (*Loxia*), 115.
Hirundinidæ, 225.
Hirundo, 239.
*Hirundo*, 239.
*hispaniolensis* (*Fringilla*), 175.
hispaniolensis (Passer), 175.
*hispaniolensis* (*Passer*), 175.
hispaniolensis transcaspicus (Passer), 175.
*hispaniolensis transcaspicus* (*Passer*), 175.
hodgsoni (Anthus), 281.
*hodgsoni* (*Motacilla*), 262.
hodgsoni berezowskii (Anthus), 283.
hodgsoni hodgsoni (Anthus), 281.
hodgsoni yunnanensis (Anthus), 282.
*horsfieldi* (*Æthopyga*), 392.
*horsfieldi* (*Cinnyris*), 392.
hortulana (Emberiza), 209.
*hortulana* (*Emberiza*), 209.
*humii* (*Coccothraustes*), 100.
humii (Pyrrhospiza), 121.
*humii* (*Sturnus*), 31.
huttoni (Emberiza), 208.
*huttoni* (*Emberiza*), 208.
Hypacanthis, 160.
*Hypacanthis*, 160.
*hypogrammica* (*Anthothreptes*), 408.
*hypogrammica* (*Nectarinia*), 408.
hypogrammica hypogrammica (Anthreptes), 408.

icterica (Emberiza), 215.
*icterica* (*Emberiza*), 215.
*icterioides* (*Coccothraustes*), 102.
icterioides (Perissospiza), 102.
*icterioides* (*Pycnorhamphus*), 102.
icterioides affinis (Perissospiza), 103.
icterioides icterioides (Perissospiza), 102.
*ignicapilla* (*Dicæum*), 437.
ignicapillus (Prionochilus), 437.
*ignicapillus* (*Prionochilus*), 437.
ignicauda (Æthopyga), 383.
*ignicauda* (*Æthopyga*), 383.
*ignicauda* (*Cinnyris*), 383.
ignicauda exultans (Æthopyga), 385.
*ignicauda exultans* (*Æthopyga*), 385.
ignicauda flavescens (Æthopyga), 384.
*ignicauda flavescens* (*Æthopyga*), 384.
ignicauda ignicauda (Æthopyga), 383.
ignipectum ignipectum (Dicæum), 427.
*ignipectus* (*Dicæum*), 427.
*ignipectus* (*Myzanthe*), 427.
*ignita* (*Nectarinia*), 423.
*inconspicua* (*Alauda*), 322.
*indica* (*Motacilla*), 276.
indicus (Dendronanthus), 276.
*indicus* (*Limonidromus*), 276.
*indicus* (*Oriolus*), 7.
*indicus* (*Passer*), 170.
*inopinata* (*Alauda*), 316.
*insignis* (*Chalcostetha*), 373.
*intermedia* (*Arachnechthra*), 398.
*intermedia* (*Eulabes*), 19, 20.
*intermedia* (*Gracula*), 19.
Irena, 1.
*Irena*, 1.
Irenidæ, 1.

*japonica* (*Alauda*), 317.
*japonicus* (*Anthus*), 299.
javana andamanensis (Eulabes), 20.
javana intermedia (Eulabes), 19.
javana javana (Eulabes), 18.
*javanensis* (*Eulabes*), 18.
*javanensis* (*Ploceus*), 76.
javanica (Hirundo), 243.
*javanica* (*Hirundo*), 243, 244.
javanica (Mirafra), 335.
*javanica* (*Mirafra*), 335.
javanica domicola (Hirundo), 244.
javanica javanica (Hirundo), 243.
javanica williamsoni (Mirafra), 336.
*javanicus* (*Eurylæmus*), 461.
*javanicus* (*Eurylaimus*), 461.
javanicus javanicus (Eurylaimus), 461.
*javanus* (*Eulabes*), 18.
*jerdoni* (*Agrodroma*), 286.

*kashmeriensis* (*Chelidon*), 228.
*kelaarti* (*Munia*), 89.
kelaarti (Uroloncha), 89.
*kundoo* (*Oriolus*), 6.

*lagopus* (*Chelidon*), 229.
Lamprocorax, 21.
*Lamprocorax*, 21.
*leautungensis* (*Alauda*), 346.
*lepida* (*Certhia*), 370.
Leptocoma, 393.
*Leptocoma*, 393.
*leucocephala* (*Budytes*), 270.
leucocephala (Emberiza), 202.
*leucocephala* (*Emberiza*), 202.
*leucocephala* (*Graculipica*), 51.
leucocephala (Gracupica), 51.
leucocephala annamensis (Gracupica), 52.
*leucocephala annamensis* (*Graculipica*), 52.
leucocephala leucocephala (Gracupica), 51.
*leucocephalus* (*Acridotheres*), 51.
*leucogastra* (*Amadina*), 87.
*leucogastra* (*Uroloncha*), 87.
leucogastra leucogastra (Uroloncha), 87.
*leucopsis* (*Motacilla*), 264.
*longipennis* (*Alauda*), 325.
*longirostris* (*Arachnothera*), 418.
*longirostris* (*Certhia*), 418.
*longirostris* (*Otocoris*), 309.
*longirostris* (*Otocorys*), 309.
longirostris longirostris (Arachnothera), 418.
*lotenia* (*Arachnechthra*), 394.
*lotenia* (*Certhia*), 394.
lotenia (Leptocoma), 394.
Loxia, 115.
*Loxia*, 115.
lugubris (Motacilla), 261.
*lugubris* (*Motacilla*), 261.
lugubris alboides (Motacilla), 262.
lugubris leucopsis (Motacilla), 264.
lugubris maderaspatensis (Motacilla), 263.
*lunatus* (*Eurylaimus*), 469.
*lunatus* (*Serilophus*), 469.
lunatus lunatus (Serilophus), 469.
*luteola* (*Emberiza*), 215.

*macrorhynchus* (*Cymbirhynchus*), 466.
*macrorhynchus* (*Todus*), 466.
macrorhynchus macrorhynchus (Cymbirhynchus), 466.
*macrourus* (*Oriolus*), 10.
*macrurus* (*Oriolus*), 10.
*maculatus* (*Anthus*), 281, 282, 283.
*maculatus* (*Pardalotus*), 438.
maculatus (Prionochilus), 438.
*maculatus* (*Prionochilus*), 438.
*maculatus berezowskii* (*Anthus*), 283.
*maculatus yunnanensis* (*Anthus*), 282.
maderaspatensis (Motacilla), 263.
magna (Arachnothera), 414.
*magna* (*Arachnothera*), 414.
*magna* (*Cinnyris*), 414.
*magna* (*Galerita*), 345.
magna aurata (Arachnothera), 416.
magna magna (Arachnothera), 414.
*major* (*Carduelis*), 149.
*malabarica* (*Alauda*), 348.
malabarica (Galerida), 348.
*malabarica* (*Galerita*), 348.
*malabarica* (*Loxia*), 89.
malabarica (Sturnia), 38.
*malabarica* (*Sturnia*), 38, 39.
malabarica (Uroloncha), 89.
*malabarica* (*Uroloncha*), 89.
malabarica andamanensis (Sturnia), 41.
malabarica blythii (Sturnia), 40.
malabarica erythropygia (Sturnia), 41
malabarica katchalensis (Sturnia), 42.
malabarica malabarica (Sturnia), 39.
malabarica nemoricola (Sturnia), 42.
*malabaricus* (*Turdus*), 39.
*malacca* (*Loxia*), 78.
malacca (Munia), 78.
*malacca* (*Munia*), 78, 79.
malacca malacca (Munia), 78.
malacca orientalis (Munia), 79.
*malacca orientalis* (*Munia*), 79.
*malaccensis* (*Anthothreptes*), 409.
*malaccensis* (*Passer*), 177.
*malacensis* (*Certhia*), 409.
malacensis malacensis (Anthreptes), 409.
*malayensis* (*Anthus*), 292.
manyar (*Fringilla*), 73
manyar (Ploceus), 73.
*manyar* (*Ploceus*), 73, 74, 75.
manyar flaviceps (Ploceus), 73.
manyar peguensis (Ploceus), 75.
*manyar peguensis* (*Ploceus*), 75.
manyar striatus (Ploceus), 74.
maxima (Melanocorypha), 311.
*maxima* (*Melanocorypha*), 311.
megarhyncha (Pitta), 452.
*megarhyncha* (*Pitta*), 452.
megarhynchus (Ploceus), 69.
*megarhynchus* (*Ploceus*), 69, 70, 71.
*melanauchen* (*Pyrrhulauda*), 355.
*melanictera* (*Fringilla*), 221.
melanicterus (Melophus), 221.
*melanicterus* (*Melophus*), 221.
melanocephala (Emberiza), 213.
*melanocephala* (*Emberiza*), 213.

*melanocephalus* (*Oriolus*), 11, 12.
Melanocorypha, 311.
*Melanocorypha*, 311.
*melanogriseus* (*Budytes*), 272.
*melanope* (*Motacilla*), 265.
*melanops* (*Emberiza*), 212.
*melanosternus* (*Acridotheres*), 55.
melanoxantha (Paraglossa), 439.
*melanoxantha* (*Paraglossa*), 439.
*melanoxanthus* (*Coccothraustes*), 105.
melanoxanthus (Mycerobas), 105.
*melanoxanthus* (*Mycerobas*), 105.
Melophus, 220.
*Melophus*, 220.
*menzbieri* (*Sturnus*), 34.
*mesoxantha* (*Zosterops*), 365.
Metaponia, 158.
*Metaponia*, 158.
*microptera* (*Mirafra*), 340.
*minima* (*Arachnechthra*), 405.
*minima* (*Cinnyris*), 405.
minima (Leptocoma), 405.
*minor* (*Sturnus*), 33.
minullum (Dicæum), 429.
*minullum* (*Dicæum*), 429.
minullum concolor (Dicæum), 429.
minullum olivaceum (Dicæum), 430.
minullum subflavum (Dicæum), 430.
*minullum subflavum* (*Dicæum*), 430.
minullum virescens (Dicæum), 431.
Mirafra, 333.
*Mirafra*, 333.
*modesta* (*Anthreptes*), 418.
*modesta* (*Arachnothera*), 418.
*modestum* (*Piprisoma*), 436.
*modestus* (*Prionochilus*), 436.
moluccensis (Pitta), 450.
*moluccensis* (*Turdus*), 450.
mongolica (Erythrospiza), 142.
*mongolica* (*Erythrospiza*), 142.
*mongolicus* (*Carpodacus*), 142.
*montana* (*Fringilla*), 176.
*montanella* (*Linota*), 157.
montanus (Passer), 176.
*montanus* (*Passer*), 176, 177, 178.
montanus dilutus (Passer), 178.
*montanus dilutus* (*Passer*), 178.
montanus malaccensis (Passer), 177.
montanus montanus (Passer), 176.
montanus obscuratus (Passer), 179.
*montanus obscuratus* (*Passer*), 179.
Montifringilla, 185.
*Montifringilla*, 185.
montifringilla (Fringilla), 164.
*montifringilla* (*Fringilla*), 164.
Motacilla, 254.
*Motacilla*, 254.
Motacillidæ, 254.
Munia, 77.
*Munia*, 77.
Mycerobas, 105.
*Mycerobas*, 105.

Nectariniidæ, 372.
Nectariniinæ, 372.
nemoricola (Fringillauda), 191.
*nemoricola* (*Fringillauda*), 191.
*nemoricola* (*Sturnia*), 42.
nemoricola altaica (Fringillauda), 192.
nemoricola nemoricola (Fringillauda), 191.
*nepalensis* (*Chelidon*), 230.
nepalensis (Delichon), 230.
*nepalensis* (*Delichon*), 230.
*nepalensis* (*Hirundo*), 250.
*nepalensis* (*Paludicola*), 444.
nepalensis (Pitta), 444.
*nepalensis* (*Pitta*), 444.
*nepalensis* (*Procarduelis*), 146.
*nepalensis* (*Pyrrhula*), 112.
*nicobarica* (*Æthopyga*), 377.
*nicobariensis* (*Zosterops*), 362.
*nigricollis* (*Graculipica*), 49.
nigricollis (Gracupica), 49.
*nigricollis* (*Gracupica*), 49.
nilghiriensis (Anthus), 283.
*nilghiriensis* (*Anthus*), 283.
*nilgiriensis* (*Anthus*), 283.
nipalensis (Æthopyga), 390.
*nipalensis* (*Æthopyga*), 391.
*nipalensis* (*Carduelis*), 146.
*nipalensis* (*Cinnyris*), 391.
nipalensis (Procarduelis), 146.
*nipalensis* (*Pyrrhula*), 112.
nipalensis horsfieldi (Æthopyga), 392.
nipalensis intensicolor (Procarduelis), 147.
*nipalensis intensicolor* (*Procarduelis*), 147.
nipalensis nipalensis (Æthopyga), 391.
nipalensis nipalensis (Procarduelis), 146.
nipalensis nipalensis (Pyrrhula), 112.
nipalensis victoriæ (Æthopyga), 392.
nipalensis victoriæ (Pyrrhula), 113.
*nivalis* (*Fringilla*), 186.
nivalis (Montifringilla), 186.
nivalis adamsi (Montifringilla), 187.
nivalis alpicola (Montifringilla), 186.
*nobilior* (*Sturnus*), 34.

*oatesi* (*Hydrornis*), 446.
oatesi (Pitta), 446.
*oatesi* (*Pitta*), 446.
*obsoleta* (*Cotile*), 238.
*obsoleta* (*Fringilla*), 143.

*obsoleta* (*Ptyonoprogne*), 238.
obsoleta (Rhodospiza), 143.
obsoleta obsoleta (Ptyonoprogne), 238.
ochromalus (Eurylaimus), 463.
*ochromelas* (*Eurylaimus*), 463.
*ochromalus* (*Eurylæmus*), 463.
*ocularis* (*Motacilla*), 261.
*olivaceum* (*Dicæum*), 430.
Oreocorys, 299.
*Oreocorys*, 299.
Oriolidæ, 4.
Oriolus, 4.
*Oriolus*, 4.
*oriolus* (*Coracias*), 5.
oriolus (Oriolus), 5.
oriolus kundoo (Oriolus), 6.
oriolus oriolus (Oriolus), 5.
ornata (Leptocoma), 401.
ornata blanfordi (Leptocoma), 402.
ornata ornata (Leptocoma), 401.
*ornatus* (*Cinnyris*), 401.
Otocoris, 306.
*Otocoris*, 306.

Pachyglossa, 439.
*Pachyglossa*, 439.
pagodorum (Temenuchus), 47.
*palpebrosa* (*Sylvia*), 358.
palpebrosa (Zosterops), 358.
*palpebrosa* (*Zosterops*), 358, 360, 361, 362, 363.
palpebrosa cacharensis (Zosterops), 361.
*palpebrosa cacharensis* (*Zosterops*), 361.
palpebrosa egregia (Zosterops), 361.
palpebrosa elwesi (Zosterops), 360.
*palpebrosa elwesi* (*Zosterops*), 360.
palpebrosa nicobariensis (Zosterops), 362.
palpebrosa palpebrosa (Zosterops), 358.
*palpebrosa peguensis* (*Zosterops*), 363.
*paludicola* (*Hirundo*), 234.
paludicola (Riparia), 234.
paludicola chinensis (Riparia), 235.
*panayensis* (*Calornis*), 22.
panayensis (Lamprocorax), 22.
panayensis affinis (Lamprocorax), 24.
panayensis strigatus (Lamprocorax), 22.
panayensis tytleri (Lamprocorax), 23.
Passer, 168.
*Passer*, 168.
passerinus (Ploceus), 70.
*passerinus* (*Ploceus*), 70.
passerinus infortunatus (Ploceus), 71.
*passerinus infortunatus* (*Ploceus*), 71.
passerinus passerinus (Ploceus), 70.
Pastor, 28.
*Pastor*, 28.
*pectoralis* (*Arachnechthra*), 401.
*pectoralis* (*Uroloncha*), 88.
*pectoralis blanfordi* (*Cyrtostomus*), 402.
*penicillata* (*Alauda*), 307.
penicillata (Otocoris), 307.
*penicillata* (*Otocorys*), 307.
Perissospiza, 101.
*Perissospiza*, 101.
*persica* (*Alaudula*), 332.
*personata* (*Motacilla*), 259.
*personata persica* (*Motacilla*), 258.
Petronia, 183.
*Petronia*, 183.
*petronia* (*Fringilla*), 184.
petronia (Petronia), 184.
petronia intermedia (Petronia), 184.
*petronia intermedia* (*Petronia*), 184.
phayrei (Anthocincla), 442.
*phayrei* (*Anthocincla*), 442.
*phayrii* (*Anthocincla*), 442.
*philippina* (*Loxia*), 67.
philippinus (Ploceus), 67.
*phœnicotis* (*Chalcoparia*), 368, 370.
phœnicura (Ammomanes), 349.
*phœnicura* (*Ammomanes*), 350.
*phœnicura* (*Mirafra*), 350.
phœnicura phœnicura (Ammomanes), 350.
phœnicura zarudnyi (Ammomanes), 351.
*phœnicuroides* (*Ammomanes*), 352.
*phœnicuroides* (*Mirafra*), 352.
Piprisoma, 434.
*Piprisoma*, 434.
Pitta, 443.
*Pitta*, 443.
Pittidæ, 441.
Ploceëlla, 75.
*Ploceëlla*, 75.
Ploceidæ, 65.
Ploceinæ, 66.
Ploceus, 66.
*Ploceus*, 66.
*pogodarum* (*Temenuchus*), 47.
*pogodarum* (*Turdus*), 47.
*poltaratzkii* (*Sturnus*), 34.
*porphyronotus* (*Sturnus*), 32.
prasina (Erythrura), 93.
*prasina* (*Erythrura*), 93.
*prasina* (*Loxia*), 93.
prasina prasina (Erythrura), 93.
*pratensis japonicus* (*Anthus*), 299.
Prionochilus, 437.
*Prionochilus*, 437.
Procarduelis, 145.
*Procarduelis*, 145.

Propasser, 122.
*Propasser*, 122.
Propyrrhula, 118.
*Propyrrhula*, 118.
Psarisomus, 472.
*Psarisomus*, 472.
ptilogenys (Eulabes), 21.
*ptilogenys* (*Eulabes*), 21.
*ptilogenys* (*Gracula*), 21.
Ptyonoprogne, 236.
*Ptyonoprogne*, 236.
*puella* (*Coracias*), 1.
puella (Irena), 1.
*puella* (*Irena*), 1.
puella cyanea (Irena), 3.
puella puella (Irena), 1.
pulcherrimus (Propasser), 126.
*pulcherrimus* (*Propasser*), 126, 127.
pulcherrimus davidianus (Propasser), 127.
pulcherrimus pulcherrimus (Propasser), 126.
*punctulata* (*Loxia*), 91.
punctulata (Uroloncha), 90.
*punctulata* (*Uroloncha*), 91, 92.
punctulata punctulata (Uroloncha), 91.
punctulata subundulata (Uroloncha), 92.
punctulata topela (Uroloncha), 92.
punicea (Pyrrhospiza), 120.
*punicea* (*Pyrrhospiza*), 120, 121.
punicea humii (Pyrrhospiza), 121.
punicea punicea (Pyrrhospiza), 120.
*purpurascens dresseri* (*Sturnus*), 35.
pusilla (Emberiza), 200.
*pusilla* (*Emberiza*), 200.
pusilla (Metaponia), 158.
*pusilla* (*Metaponia*), 158.
*pusillus* (*Passer*), 158.
pyrrhonotus (Passer), 174.
*pyrrhonotus* (*Passer*), 174.
Pyrrhoplectes, 114.
*Pyrrhoplectes*, 114.
Pyrrhospiza, 120.
*Pyrrhospiza*, 120.
Pyrrhula, 108.
*Pyrrhula*, 108.
Pyrrhulauda, 353.
*Pyrrhulauda*, 353.

*raytal* (*Alauda*), 329.
raytal (Alaudula), 329.
*raytal* (*Alaudula*), 329.
raytal adamsi (Alaudula), 331.
raytal raytal (Alaudula), 329.
religiosa (Eulabes), 17.
*religiosa* (*Eulabes*), 17.
*religiosa* (*Gracula*), 17.
rhodochlamys (Propasser), 128.
*rhodochlamys* (*Propasser*), 128.
rhodochlamys grandis (Propasser), 128.
*rhodochrous* (*Propasser*), 129.
*rhodolæma* (*Anthothreptes*), 411.
rhodolæma (Anthreptes), 411.
*rhodolæma* (*Anthreptes*), 411.
Rhodopechys, 144.
*Rhodopechys*, 144.
*rhodopeplus* (*Propasser*), 130.
Rhodospiza, 143.
*Rhodospiza*, 143.
richardi (Anthus), 287.
*richardi* (*Anthus*), 288.
richardi godlewskii (Anthus), 289.
richardi malayensis (Anthus), 292.
richardi richardi (Anthus), 288.
richardi rufulus (Anthus), 290.
Riparia, 231.
*Riparia*, 231.
*riparia* (*Cotile*), 232, 233, 234.
*riparia* (*Hirundo*), 231.
riparia (Riparia), 231.
riparia diluta (Riparia), 232.
*riparia ijimæ* (*Clivicola*), 234.
riparia ijimæ (Riparia), 234.
*riparia indica* (*Riparia*), 233.
riparia subsoccata (Riparia), 233.
*ripponi* (*Carpodacus*), 132.
ripponi (Propasser), 132.
*rodochroa* (*Fringilla*), 129.
rodochrous (Propasser), 129.
*rodopepla* (*Fringilla*), 130.
rodopeplus (Propasser), 130.
*rosaceus* (*Anthus*), 295.
*roseata* (*Pyrrhulinota*), 137.
roseatus (Anthus), 295.
*roseatus* (*Anthus*), 295.
roseus (Pastor), 29.
*roseus* (*Pastor*), 29.
*roseus* (*Turdus*), 29.
rubescens (Procarduelis), 147.
*rubescens* (*Procarduelis*), 148.
rubescens rubescens (Procarduelis), 148.
rubescens saturatior (Procarduelis), 148.
*rubescens saturatior* (*Procarduelis*), 148.
rubicilla (Carpodacus), 138.
*rubicilla* (*Loxia*), 138.
rubicilla rubicilloides (Carpodacus), 138.
*rubicilloides* (*Carpodacus*), 138.
*rubroniger* (*Munia*), 81.
*rubropygia* (*Raya*), 470.
rubropygius (Serilophus), 470.
*rubropygius* (*Serilophus*), 470.
*rufescens* (*Alauda*), 332.
rufescens (Alaudula), 332.
rufescens persica (Alaudula), 332.
rufescens seebohmi (Alaudula), 333.

ruficollis (Montifringilla), 189.
*ruficollis* (*Montifringilla*), 189.
rufiventris (Uroloncha), 88.
*rufiventris* (*Uroloncha*), 88.
*rufostrigata* (*Linota*), 157.
*rufula* (*Hirundo*), 252.
*rufulus* (*Anthus*), 290, 292.
*rupestris* (*Hirundo*), 236.
rupestris (Ptyonoprogne), 236.
*rupestris* (*Ptyonoprogne*), 236.
rustica (Hirundo), 240.
*rustica* (*Hirundo*), 240.
rustica gutturalis (Hirundo), 241.
rustica rustica (Hirundo), 240.
rustica tytleri (Hirundo), 242.
rutila (Emberiza), 216.
*rutila* (*Emberiza*), 216.
*rutilans* (*Fringilla*), 179.
rutilans (Passer), 179.
rutilans cinnamomeus (Passer), 180.
rutilans debilis (Passer), 181.
*rutilans debilis* (*Passer*), 181.
rutilans intensior (Passer), 182.
*rutilans intensior* (*Passer*), 182.

*sanguinea* (*Fringilla*), 144.
sanguinea sanguinea (Rhodopechys), 144.
*sanguinipecta* (*Æthopyga*), 390.
sanguinipecta sanguinipecta (Æthopyga), 390.
Saroglossa, 24.
*Saroglossa*, 24.
*saturata* (*Æthopyga*), 388.
*saturata* (*Cinnyris*), 388.
saturata saturata (Æthopyga), 388.
schœniclus (Emberiza), 196.
*schœniclus* (*Emberiza*), 197.
*schœniclus* (*Fringilla*), 196.
schœniclus pallidior (Emberiza), 197.
*schœniclus pallidior* (*Emberiza*), 197.
*seebohmi* (*Alaudula*), 333.
*seheriæ* (*Æthopya*), 378.
*seheriæ* (*Nectarinia*), 378.
*seheriæ viridicauda* (*Æthopyga*), 381.
*semistriata* (*Munia*), 84.
*semistriata* (*Uroloncha*), 84.
*senex* (*Heterornis*), 46.
senex (Sturnornis), 46.
*senex* (*Sturnornis*), 46.
Serilophus, 469.
*Serilophus*, 469.
severtzovi (Carpodacus), 139.
*severtzovi* (*Carpodacus*), 139.
siamensis (Zosterops), 364.
*siamensis* (*Zosterops*), 364.
*similis* (*Anthus*), 285, 286, 287.
*simplex* (*Anthothreptes*), 412.
simplex (Anthreptes), 411.
*simplex* (*Nectarinia*), 411.
simplex (Zosterops), 363.
*simplex* (*Zosterops*), 363.
simplex peguensis (Zosterops), 363.
simplex xanthochlora (Anthreptes), 412.
*sinensis* (*Cotile*), 235.
*sinensis* (*Sturnia*), 37.
singalensis (Chalcoparia), 368.
*singalensis* (*Motacilla*), 368.
singalensis lepida (Chalcoparia), 370.
singalensis singalensis (Chalcoparia), 368.
*sipahi* (*Corythus*), 117.
sipahi (Hæmatospiza), 117.
*sipahi* (*Hæmatospiza*), 117.
siparaja (Æthopyga), 375.
*siparaja* (*Certhia*), 375.
siparaja cara (Æthopyga), 376.
siparaja mussooriensis (Æthopyga), 380.
*siparaja mussooriensis* (*Æthopyga*), 380.
siparaja nicobarica (Æthopyga), 377.
siparaja seheriæ (Æthopyga), 378.
siparaja vigorsi (Æthopyga), 381.
siparaja viridicauda (Æthopyga), 381.
smithii (Hirundo), 245.
*smithii* (*Hirundo*), 245.
smithii filifera (Hirundo), 245.
sordida (Fringillauda), 192.
sordidus (Anthus), 284.
*sordidus* (*Anthus*), 284.
sordidus decaptus (Anthus), 287.
*sordidus decaptus* (*Anthus*), 287.
sordidus jerdoni (Anthus), 286.
sordidus similis (Anthus), 285.
*spiloptera* (*Psaroglossa*), 25, 26.
spiloptera (Saroglossa), 24.
*spiloptera assamensis* (*Psaroglossa*), 26.
spiloptera assamensis (Saroglossa), 26.
spiloptera spiloptera (Saroglossa), 25.
*spilopterus* (*Lamprotornis*), 25.
*spinoides* (*Carduelis*), 160.
spinoides (Hypacanthis), 160.
*spinoides* (*Hypacanthis*), 160.
spinoides ambiguus (Hypacanthis), 161.
spinoides spinoides (Hypacanthis), 160.
*spinoletta* (*Alauda*), 296.
spinoletta (Anthus), 296.
*spinoletta* (*Anthus*), 297, 298.
spinoletta blakistoni (Anthus), 298.
spinoletta coutelli (Anthus), 297.
spinoletta japonicus (Anthus), 299.
Spodiopsar, 36.
*Spodiopsar*, 36.
spodocephala (Emberiza), 212.

*spodocephala* (*Emberiza*), 212.
spodocephala melanops (Emberiza), 212.
*squalida* (*Pipra*), 435.
squalidum (Piprisoma), 435.
*squalidum* (*Piprisoma*), 435.
squalidum modestum (Piprosoma), 436.
squalidum squalidum (Piprisoma), 435.
*squamicollis* (*Uroloncha*), 86.
stewarti (Emberiza), 203.
*stewarti* (*Emberiza*), 203.
Stictospiza, 94.
*Stictospiza*, 94.
*stracheyi* (*Emberiza*), 205, 206.
*striata* (*Loxia*), 83.
striata (Uroloncha), 82.
*striata* (*Uroloncha*), 83.
striata acuticauda (Uroloncha), 84.
striata fumigata (Uroloncha), 83.
striata semistriata (Uroloncha), 84.
striata squamicollis (Uroloncha), 86.
striata striata (Uroloncha), 83.
striata subsquamicollis (Uroloncha), 86.
*striatus* (*Euplectes*), 74.
*strigatus* (*Turdus*), 22.
*striolata* (*Emberiza*), 217.
*striolata* (*Fringilla*), 217.
*striolata* (*Hirundo*), 249.
striolata striolata (Emberiza), 217.
*striolatus* (*Anthus*), 289.
*stulta* (*Petronia*), 184.
Sturnia, 37.
*Sturnia*, 37.
Sturnidæ, 27.
*sturnia* (*Gracula*), 43.
sturninus (Agropsar), 43.
*sturninus* (*Agropsar*), 43.
Sturnopastor, 61.
*Sturnopastor*, 61.
Sturnornis, 46.
*Sturnornis*, 46.
Sturnus, 30.
*Sturnus*, 30.
subhimachala subhimachala (Propyrrhula), 119.
*subhimachalus* (*Corythus*), 119.
*subhimalayensis* (*Propyrrhula*), 119.
*subsoccata* (*Cotyle*), 233.
subulata (Fringilla), 151.
*subundulata* (*Munia*), 92.
*sumatranus* (*Coracias*), 464.
*sumatranus* (*Corydon*), 464.
sumatranus sumatranus (Corydon), 464.
*superciliaris* (*Sturnopastor*), 64.
*sylvana* (*Heterura*), 299.
sylvanus (Oreocorys), 299.
*ylvanus* (*Oreocorys*), 299.
*s*
taczanowskii (Montifringilla), 188.
*taczanowskii* (*Onychospiza*), 188.
*taivanus* (*Budytes*), 270.
Temenuchus, 47.
*Temenuchus*, 47.
*tenuirostris* (*Oriolus*), 9.
thibetana (Chrysomitris), 162.
*thibetana* (*Chrysomitris*), 162.
*thunbergi* (*Motacilla*), 269.
*thura* (*Carpodacus*), 123.
thura (Propasser), 123.
*thura* (*Propasser*), 123, 124, 125.
thura blythi (Propasser), 124.
thura dubius (Propasser), 125.
thura femininus (Propasser), 125.
thura thura (Propasser), 123.
*tibetana* (*Calandrella*), 328.
*tibetana* (*Chrysomitris*), 162.
*topela* (*Munia*), 92.
*torquatus* (*Acridotheres*), 58.
traillii (Oriolus), 14.
*traillii* (*Oriolus*), 14.
*traillii* (*Pastor*), 14.
*trigonostigma* (*Certhia*), 424.
trigonostigma (Dicæum), 424.
*trigonostigma* (*Dicæum*), 425.
trigonostigma rubropygium (Dicæum), 425.
*trignonostigma rubropygium* (*Dicæum*), 425.
tristis (Acridotheres), 53.
*tristis* (*Acridotheres*), 53.
*tristis* (*Paradisea*), 53.
tristis melanosternus (Acridotheres), 55.
tristis tristis (Acridotheres), 53.
*trivialis* (*Alauda*), 279, 280.
trivialis (Anthus), 278.
*trivialis* (*Anthus*), 279.
trivialis haringtoni (Anthus), 280.
*trivialis haringtoni* (*Anthus*), 280.
*trivialis hodgsoni* (*Anthus*), 281.
trivialis trivialis (Anthus), 279.
*turdiformis* (*Pastor*), 37.
turdiformis (Sturnia), 37.
*tytleri* (*Calornis*), 23.
*tytleri* (*Hirundo*), 242.

*urbica* (*Chelidon*), 226.
urbica (Delichon), 226.
*urbica* (*Hirundo*), 226.
urbica cashmeriensis (Delichon), 228.
urbica urbica (Delichon), 226.
urbica whiteleyi (Delichon), 229.
Uroloncha, 81.
*Uroloncha*, 81.

*victoriæ* (*Æthopyga*), 392.
*victoriæ* (*Pyrrhula*), 113.

*vigorsi* (*Æthopyga*), 381.
*vigorsi* (*Cinnyris*), 381.
*vinaceus* (*Carpodacus*), 133.
vinaceus vinaceus (Propasser), 133.
vincens (Acmonorhynchus), 434.
*vincens* (*Acmonorhynchus*), 434.
*vincens* (*Prionochilus*), 434.
*virescens* (*Dicæum*), 431.
viridis (Calyptomena), 475.
*viridis* (*Calyptomena*), 475.
vulgaris (Sturnus), 31.
*vulgaris* (*Sturnus*), 31.
vulgaris dresseri (Sturnus), 35.
vulgaris dzungaricus (Sturnus), 35.
vulgaris humii (Sturnus), 31.
vulgaris minor (Sturnus), 33.
vulgaris nobilior (Sturnus), 34.
vulgaris poltaratzskii (Sturnus), 34.
vulgaris porphyronotus (Sturnus), 32.

*whiteleyi* (*Chelidon*), 229.

*xanthochlora* (*Anthreptes*), 412.
*xanthocollis* (*Fringilla*), 166.
xanthocollis (Gymnoris). 166.
xanthocollis transfuga (Gymnoris), 168.
xanthocollis xanthocollis (Gymnoris), 166.
*xanthonotus* (*Oriolus*), 13.
*xanthonotus xanthonotus* (*Oriolus*), 13.
*xanthornis* (*Coracias*), 11.
xanthornis (Oriolus), 11.
xanthornis ceylonensis (Oriolus), 12.
xanthornis xanthornis (Oriolus), 11.

*yunnanensis* (*Emberiza*), 207.

*zeylonica* (*Arachnechthra*), 406.
*zeylonica* (*Certhia*), 406.
zeylonica (Leptocoma), 406.
Zosteropidæ, 357.
Zosterops, 357.
*Zosterops*, 357.

PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET, E.C. 4

THACKER, SPINK & CO
BOOKSELLERS
STATIONERS
PRINTERS &C